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Contextual Factors that Affect Chinese Learners’ Accuracy in the Use of the English Indefinite Article

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A thesis submitted in partial fulfilment of the requirement for the degree of Doctor of Philosophy in Applied Linguistics

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Abstract

The research reported in this thesis investigated how Chinese learners of English used the indefinite article and whether their omission or commission errors were related to specific grammatical, linguistic and semantic-pragmatic contexts.

Mixed methods were used to collect data in two separate studies: a corpus study and an elicitation study. In the corpus study, 101 Chinese university students’ compositions were selected from CLEC (Chinese Learner English Corpus), and learners’ (mis)uses of the indefinite article were described by a multi-layered coding system. In the elicitation study, a grammaticality judgement test (GJT) and an article choice test were used with Chinese learners of different proficiency levels (i.e. 118 middle school students and 112 university students).

The research found that: 1. Learners of a higher proficiency were not only more accurate but also more consistent in using the indefinite article than learners of a lower proficiency. 2. Learners were significantly more accurate with concrete nouns than with abstract nouns. 3. The accuracy of the indefinite article differed across syntactic positions: the object position had the lowest accuracy and the complement position had a high accuracy. 4. Modification of noun phrases had no significant effect on the accuracy of the indefinite article. 5. Learners’ accuracy in the generic context was significantly lower than that in the non-generic contexts. Within the non-generic contexts, the accuracy of the indefinite article was significantly higher in the semantically specific context than in the non-specific context. Learners’ higher accuracy in the specific context may be attributed to the fact that the specific meaning is prototypical of the indefinite article. 6. Pragmatic specificity and explicitly stated knowledge of the referent (ESK) also had an effect on the accuracy of the indefinite article. University students were more sensitive to the topic continuity of a referent while the middle school students’ choice of articles was influenced by the objective identifying attributes of a referent.

In sum, the Chinese learners’ (mis)use of the indefinite article was affected by a combination of factors, including the properties of nouns (i.e. the countability and the concreteness/abstractness of nouns), the linguistic context of the noun phrases (i.e. the syntactic position of the noun phrases), the semantic context of the referent (i.e. specific, non-specific and generic contexts), and learners’ perception of the communicative importance of the referent through topic continuity or the objectively identifying attributes of the referent.
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## List of Abbreviations

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<th>Abbreviation</th>
<th>Description</th>
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<tbody>
<tr>
<td>ACP</td>
<td>Article Choice Parameter</td>
</tr>
<tr>
<td>BCa 95% CI</td>
<td>bias corrected and accelerated bootstrap 95% confidence interval</td>
</tr>
<tr>
<td>CI</td>
<td>confidence interval</td>
</tr>
<tr>
<td>Comp</td>
<td>complement</td>
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<tr>
<td>Def</td>
<td>definite</td>
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<tr>
<td>EFL</td>
<td>English as a foreign language</td>
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<tr>
<td>ESK</td>
<td>explicitly stated knowledge</td>
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<tr>
<td>ESL</td>
<td>English as a second language</td>
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<tr>
<td>FV</td>
<td>facility value</td>
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<tr>
<td>FH</td>
<td>Fluctuation Hypothesis</td>
</tr>
<tr>
<td>HK</td>
<td>assumed hearer’s knowledge</td>
</tr>
<tr>
<td>LB</td>
<td>lower bound</td>
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<tr>
<td>Mdn</td>
<td>median</td>
</tr>
<tr>
<td>NS</td>
<td>native speaker</td>
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<tr>
<td>NNS</td>
<td>non-native speaker</td>
</tr>
<tr>
<td>NP</td>
<td>noun phrase</td>
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<tr>
<td>Obj</td>
<td>direct object</td>
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<tr>
<td>P</td>
<td>presupposedness</td>
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<tr>
<td>Prag sp</td>
<td>pragmatic specificity</td>
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<tr>
<td>Prep comp</td>
<td>prepositional complement</td>
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<tr>
<td>S</td>
<td>specificity</td>
</tr>
<tr>
<td>SD</td>
<td>standard deviation</td>
</tr>
<tr>
<td>Sem sp</td>
<td>semantic specificity</td>
</tr>
<tr>
<td>SE</td>
<td>standard error</td>
</tr>
<tr>
<td>SES</td>
<td>standard error of skewness</td>
</tr>
<tr>
<td>SOC</td>
<td>suppliance in obligatory contexts</td>
</tr>
<tr>
<td>SR</td>
<td>specific referent</td>
</tr>
<tr>
<td>Subj</td>
<td>subject</td>
</tr>
<tr>
<td>TLU</td>
<td>target-like use</td>
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<tr>
<td>UB</td>
<td>upper bound</td>
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Chapter 1 Introduction

The research reported in this thesis investigated how Chinese learners of English used the indefinite article and whether their omission or commission errors were related to specific grammatical, linguistic and semantic-pragmatic contexts. These contexts or factors of interest included the properties of nouns (i.e. the countability and abstractness/concreteness of nouns), the linguistic contexts of noun phrases (i.e. the grammatical functions of noun phrases and modification in the noun phrases), and the semantic-pragmatic contexts (i.e. genericity, semantic specificity, pragmatic specificity, and explicitly stated knowledge of the referent). Learners’ accuracy of the indefinite article in different contexts defined by these factors was compared and the potential relationship between types of errors and these factors was also explored. Mixed methods were used to collect data in order to explore the research questions from different perspectives.

The research consisted of two studies: a corpus study that coded article usage errors in Chinese university students’ written compositions and an elicitation study that used a grammaticality judgement task and an article choice task to test Chinese middle school and university students’ knowledge of the indefinite article. Results from the two studies and from learners of different proficiency levels were compared in order to provide a composite picture of how Chinese EFL learners used the indefinite article in different contexts.

This research topic was prompted by my personal experience in using English articles and the mixed findings of previous studies on article acquisition. I will outline below my motivation for this topic and the research background for this thesis.

1.1 Motivation for the research topic

The acquisition of the English article system is a challenging task for learners of the English language. L2 learners who have difficulty in using the articles (i.e. a, the and the zero article)\(^1\) appropriately include the entire gamut of language proficiency, from lower level learners to very advanced learners. At the same time, teaching articles also proves difficult for many ESL/EFL teachers, and some among them even report that teaching articles constitutes their number one difficulty (Celce-Murcia, Larsen-Freeman, & Williams, 1999).
As a Chinese learner of English, I have been learning and using English for 24 years but I still find articles difficult and do not expect to attain native-like competence in article usage. The problem with articles is recurrent and in fact, unavoidable in speaking and writing due to the high frequency of articles as function words in English. The definite article *the* is the most frequently seen word in English and the indefinite article *a* ranks fifth in frequency, according to corpus statistics (Sinclair, 1991). Their frequency makes it hard for language users to neglect them yet complete acquisition is difficult to achieve. There are various reasons for this difficulty. Morphologically speaking, articles are function words that cannot be used independently. That is, they have to be used together with nouns, exhibiting a relationship with different types of nouns. Nouns are by themselves complex. They can be categorized into common nouns and proper nouns and common nouns can be divided into count and noncount nouns, with both subtypes further divided into abstract and concrete nouns (Quirk, Greenbaum, Leech, & Startvik, 1985). The choice of articles has to take account of the noun classes and their number and countability. Semantically speaking, articles encode multiple meanings, unlike other grammatical features that show a clear one-to-one form-meaning correspondence, such as plural suffix *-s*. For instance, the indefinite article can be used either with a specific sense or with a non-specific sense and likewise with the definite article. L2 learners should be able to decode the different meanings of the same form and discriminate between them in order to use them properly. Pragmatically speaking, articles are highly sensitive to context. The speaker has to evaluate the discourse situation including the hearer’s knowledge in order to use the articles in a way that is conducive to mutual understanding. The user’s linguistic knowledge has to be combined with extra-linguistic knowledge. Failure to consider the context on the part of the speaker will misguide the hearer and prevent the discourse from unfolding smoothly. On the other hand, the hearer also has to size up the linguistic and extra-linguistic situation in order to decipher what the speaker intends to convey. Besides, inadequate intake will also affect the acquisition of articles. Articles occur very frequently in English but this does not guarantee a high level of intake for learners. Master (1990) pointed out that the fact that articles are either unstressed (in the case of *a* and *the*) or invisible (in the case of the zero article) makes it difficult for learners to gain sufficient intake. Last but not least, typological differences between English and the learners’ first language may give additional trouble to L2 learners. Learners with an article-less L1, such as Chinese, are likely to misuse articles due to L1 influence. The above reasons for the difficulty in using articles correctly are multifarious. These include: the grammatical rules, the complex article semantics, the pragmatic contexts, insufficient input
and typological differences between languages. It is no exaggeration to say that ‘the English article system is one of the most difficult aspects of English grammar for non-native speakers and one of the latest to be fully acquired’ (Master, 1990, p. 461).

The fact that articles are notoriously difficult motivated me to learn more about article acquisition in order to know why we EFL learners find it hard to use articles correctly and what we can do to improve our accuracy. However, given the complexity of articles, I found it impossible to address the entire article system in my thesis. Instead, I chose to focus on the indefinite article, partly because it is the indefinite article that is regarded as being more difficult than the definite article as it is acquired later than the definite article (Garcia Mayo, 2009; H. Li & Yang, 2010; Liu, Dai, & Li, 2013; Lu, 2001; Parrish, 1987; Zdorenko & Paradis, 2008), and partly because the indefinite article relates immediately to the countability of nouns which in itself is tricky. When we decide that the context is definite (excluding proper nouns), we can only use the definite article. But if the context is indefinite, we still have to choose between a and the zero article on the basis of number and countability, as both can be used in the indefinite context. In order to use the indefinite article correctly, we have to further distinguish between count and noncount nouns, in addition to the distinction between the definite and the indefinite meanings. Countability ‘appeared to cause the most persistent difficulty in article acquisition’ (Master, 1987), which is one reason why the indefinite article is so difficult. Having a general topic in mind, I set out to read the literature on article acquisition which shaped my final research questions.

1.2 Research background

As mentioned above, the use of articles relates to various grammatical, syntactic and semantic-pragmatic factors. The countability of nouns is difficult to distinguish to begin with. Butler (2002) reported that lower-level learners tended to think that countability is a static notion, unaware of the fact that most nouns can be countable or uncountable according to context. The abstractness or concreteness of nouns can also lead to errors. Contrary to our expectation that abstract nouns are more difficult, Trenkic (2002) reported that L1 Serbian learners’ accuracy of the indefinite article was higher with abstract nouns than with concrete nouns. The mixed findings in this aspect gave rise to one of the research questions of this research: Is Chinese learners’ use of the indefinite article affected by the countability of nouns and the abstractness of nouns?
Learners’ use of articles is also affected by the internal structure of the noun phrase and the syntactic position of the noun phrase in a sentence. Previous studies have found that L2 learners tend to overuse *the* in place of *a* with nouns having modifiers such as adjectives or clauses, due probably to learners’ association of articles with certain syntactic or structural constructions (Butler, 2002; Zhu, 2009). In contrast, a number of studies have reported that learners are more likely to omit articles when a noun is modified by an adjective than with an unmodified noun, perhaps due to learners identifying the articles as redundant in the context (Sharma, 2005; Trenkic, 2002, 2009), or due to prosodic differences between the L1 and L2 in oral production (Goad & White, 2004). The internal structure of the noun phrase or the level of modification in the noun phrase can be a source of trouble for learners struggling with articles, although the results regarding which contexts learners overuse *the* for *a* or omit *a* where it should be used are mixed. Apart from the structure of the noun phrase, the syntactic position of the noun phrase in a clause is also of potential significance. Zhou (2008) found that ‘generic *a*’ in the subject position of sentences is likely to incur the omission of the indefinite article. Lang (2010) studied the acquisition of articles by a 9-year-old Chinese boy living in the U.S. He coded article usage in terms of noun phrase functions among other linguistic environments. The learner’s correct use of *a/an* was mainly associated with complement NPs and object NPs while the accuracy rates in subject NPs and adverbial NPs were much lower. The above findings suggest that the use of the indefinite article in certain syntactic positions is more difficult for learners. The current research also pursued this line and explored the potential relationship between article usage and these linguistic contexts of noun phrases.

In addition to the grammatical and linguistic contexts, different semantic contexts of noun phrases can cause different types of article errors and some semantic contexts lead to a higher error rate than others. For example, the specific indefinite context is reported to be very problematic, as learners continued to overuse *the* for *a* in this context even after their overuse of *the* disappeared from other semantic contexts (e.g. Butler, 2002; Huebner, 1983; Parrish, 1987; Thomas, 1989; Zhou, 2008). Ionin (2003) and Ionin, Ko, and Wexler (2004) proposed the Article Choice Parameter (ACP) and attributed learners’ overuse of *the* with specific indefinites and overuse of *a* with non-specific definites to mis-settings of the Article Choice Parameter. They put forward the Fluctuation Hypothesis (FH) to account for learners’ optional adherence to the two settings of ACP (i.e. definiteness and specificity). Trenkic (2008), however, challenged the Fluctuation Hypothesis by calling into question the
definition of specificity in Ionin et al. (2004). She defined specificity in a different way and came to the conclusion that the overuse of the was related to the explicitly stated confirmed knowledge of the referent (i.e. ESK) and the overuse of a was related to the denied knowledge of the referent, contradicting Ionin et al.’s (2004) claim that the commission errors are related to the specificity of the context. These studies operationalized specificity in different ways and the results are mixed. Thus the research question about the potential effect of article semantics and in particular the effect of specificity on learners’ use of the indefinite article found its way into the current thesis.

To summarize, the complexity of articles spurred different lines of inquiry in SLA studies. Among the various factors that can affect learners’ article usage, the current thesis addressed three main factors: the properties of nouns, the linguistic contexts of noun phrases and the semantic-pragmatic contexts of noun phrases.

1.3 Significance of the research

The correct use of articles is a daunting task for EFL learners and teaching learners how to use articles correctly is no less difficult for EFL teachers. This research not only explored learners’ accuracy in different contexts but also aimed to explain the association between error types and different syntactic and semantic-pragmatic contexts. Results of this research will help learners realize the potential problems they have in using the indefinite article and will also help English teachers to provide more effective instruction. Knowing what types of errors learners are likely to commit in different contexts will help English teachers predict and prevent possible errors from occurring. Knowing why learners commit such errors will help teachers better understand and correct learners’ errors.

Apart from potential pedagogical implications, the study of learners’ use of the indefinite article in different semantic contexts can also provide evidence for semantic theories. For example, one finding of the study is that the learners’ order of acquisition of the indefinite article in different contexts matched the stages that linguists have claimed exist in the historic evolution of the English indefinite article, suggesting an underlying cognitive basis.

1.4 Structure of the thesis

After this introductory chapter, Chapter 2 is a review of literature. Both the linguistic literature on article semantics and the SLA literature on article acquisition are included.
Chapter 3 presents the research questions and describes the methods used to address the research questions for both the corpus study and the elicitation study. Chapter 4 reports the results of the corpus study, and Chapters 5 and 6 report the results of the elicitation study for university students and middle school students respectively. Chapter 7 brings together the results from both the corpus study and the elicitation study and discusses the findings in relation to each research question. Chapter 8 summarizes the findings, makes some pedagogical suggestions for article instruction and discusses the limits of the research.
Notes

1 The current thesis uses the term ‘the zero article’ when neither the definite article nor the indefinite article is used before a noun, which is also the traditional view of the zero article. Chesterman (1991) distinguished between ‘the zero article’ and ‘the null article’, referring to the former as the non-overt indefinite article (used with mass and plural nouns) and the latter as the non-overt definite article (used with proper nouns). This thesis does not find it necessary to make such a distinction.

2 Master (1990) used the word ‘input’ rather than ‘intake’, but according to his meaning the noticed and comprehended input is really ‘intake’.
Chapter 2 Literature Review

2.1 Introduction

This chapter will review the linguistic literature on article semantics and the SLA literature on article acquisition with a view to arriving at a coding system that can better capture the contexts where articles occur and also to defining the key semantic features which will be examined in the corpus and elicitation studies reported in subsequent chapters. I will first introduce the use of the indefinite article as this is presented in descriptive grammar books to provide a foretaste of the difficulties L2 learners experience in article usage. Section 3 will discuss the linguistic literature on the referential features of article semantics, namely, specificity, definiteness and genericity, which will provide a basis for examining how these concepts have been operationalized in SLA studies on article acquisition. Section 4 will consider the use of the indefinite article in chunks as opposed to noun phrases generated by rules, and introduce the criteria that have been used to identify chunks in previous studies. Section 5 will review findings from SLA studies on article acquisition and discuss a number of problems concerning the operationalization of article semantics in these studies. The final section will summarize the whole chapter and consider the implications for the current research.

2.2 Indefinite article in descriptive grammar

The indefinite article, together with the definite article and the zero article, comprising the English article system, falls into the grammatical category of determiners, or function words that help define the reference of nouns.

The indefinite article occurs in two forms, *a* and *an*, the choice of which depends on the initial sound of the following word: *a* is used, pronounced as /ə/, before consonants, while *an* is used, pronounced as /ən/, before vowels, hence *a boy* and *an apple*. On some occasions, the speaker may feel the need to emphasize the referent by pronouncing the indefinite article in a stressed way. For special emphasis, *a* may be pronounced as /eɪ/ and *an* as /æn/.

Articles, unlike content words and most of the other function words, do not make sense on their own. They are used together with nouns and therefore are governed by features of
nouns. Nouns can be categorized into common nouns and proper nouns and common nouns can be divided into count and noncount nouns. The indefinite article is generally used before singular count nouns. Where there are several count nouns, \textit{a} need only be used before the first noun, for example, \textit{a knife}, \textit{(a) fork}, and \textit{(a) spoon}.

\textbf{Referring \textit{a}}

The use of \textit{a/an} with nouns can be referential or non-referential (i.e. synonymous terms for specific or non-specific). For the referential use, the indefinite article ‘narrows down the reference of the following noun to a single member of a class’ (Biber, Johansson, Leech, Conrad, \& Finegan, 1999, p. 70). In other words, the referent should not be uniquely identifiable in the shared knowledge of the speaker and the hearer (J. A. Hawkins, 1978; Quirk et al., 1985). The conditions where the indefinite article is used can be further distinguished as follows: 1. The speaker and the hearer have no shared knowledge; or 2. The speaker and the hearer have some shared knowledge, but there is more than one referent in their shared knowledge and there is no way to uniquely locate the referent. For instance,

1. I encountered a kangaroo while driving on a highway.

2. I saw several boys playing hide and seek. A boy hid behind a barn.

In sentence 1, the speaker is simply telling the hearer about an adventure he had, and the hearer could not have prior knowledge of the incident before the conversation. By using \textit{a}, the speaker is referring to a specific kangaroo that he ran into but that is completely new to the hearer.

In sentence 2, the speaker mentioned \textit{several boys} first and went on to talk about one of those mentioned earlier. The hearer has some shared knowledge with the speaker after the speaker mentioned \textit{several boys}, but the hearer cannot possibly know which boy hid behind a barn, so the speaker has to use \textit{a boy} rather than \textit{the boy} in the following discourse. However, if sentence 2 is changed to

3. I saw a boy playing hide and seek. The boy hid behind a barn.

then a unique referent can be identified in the shared knowledge of the speaker and the hearer. The speaker has to use the definite article if he means to refer to the boy mentioned earlier. If the speaker chooses not to use \textit{the boy}, but continues to use \textit{a boy} as in
4. I saw a boy playing hide and seek. A boy hid behind a barn.

The hearer will not be directed to refer back to the boy in the preceding discourse, but will understand the second mention of *a boy* to be a different boy from the first one.

Shared knowledge of the speaker and the hearer is essential for the speaker to decide whether to use the definite article or the indefinite article. However, the notion of ‘shared knowledge’ is more or less a matter of presumption on the part of the speaker, as it is the speaker who judges whether the hearer has the shared knowledge and who uses the article to cue the hearer. Compare the following two sentences:

5. a. I bought *a* car.

   b. I bought *the* car.

It is all right for the speaker to tell the hearer about a new car he bought by using the indefinite article as in sentence 5a. If the speaker uses the definite article as in 5b, he is assuming that the hearer knows something about the car he is talking about. If the hearer could not think of a car that can be associated with the current conversation, the hearer would probably ask for clarification: ‘which car?’ And the speaker will have to specify the referent, perhaps by adding ‘the car I mentioned to you last week’.

First-mention nouns are usually denoted by the indefinite article, as first-mention referents tend to be new from the hearer’s point of view. However, being mentioned for the first time does not necessarily warrant an indefinite article. For example, the speaker can say *the sun is eclipsed*, using *the* before *sun* as a first-mention referent in a perfectly legitimate way, because the referent is uniquely identifiable in the shared knowledge of the speaker and hearer, that is, the shared world knowledge that there is only one sun in the universe. If the speaker is not talking about the current world we are living in, but intends to tell an ancient Chinese folk story that there used to be ten suns in the world before a hero shot down nine of them, he will have to use *a* to refer to one of the ten suns for the first mention.

**Non-referring *a***

The indefinite article can also be used in a non-referring way. The indefinite article is ‘strongly associated with the complement function in a clause, or more generally with noun phrases in a copular relationship’ (Quirk et al., 1985, p. 273). For example:
6. Austen is a novelist.

The noun phrase *a novelist* in sentence 6 does not refer to any particular novelist or novelists in general, but describes the role as a novelist. It is a non-referential use of *a*, indicating a kind of identity or concept. The descriptive role can be tested in the following way:

7. Austen is a novelist. *The novelist remained single all her life.*

It would seem strange to use *the novelist* to refer back to Austen mentioned earlier, as the preceding noun is of a descriptive rather than a referential role (see more examples in Haspelmath, 1997, p. 38; Karttunen, 1976, p. 366). It would be more natural if we change sentence 7 into:

8. Austen is a novelist. *She* remained single all her life.

By contrast, here is a referential use of *a*:


In sentence 9, the speaker refers to a particular person and the referring role of the noun licenses the following anaphoric use of *the*.

**Generic a**

Apart from the referential and non-referential uses of *a*, the indefinite article can also be used for generic reference. In the sentence below, the speaker does not have a particular tiger in mind, but refers to any representative member of the species as tigers:

10. *A tiger* is a fierce animal.

Similarly, the definite article and the zero article can also be used for generic reference as illustrated below:

11. *The tiger* is a fierce animal.

12. *Tigers* are fierce animals.

But not all the three articles are applicable for any generic reference. Compare the following three sentences:

13. a. *A tiger is becoming scarce.*
b. The tiger is becoming scarce.

c. Tigers are becoming scarce.

The generic use of *a*, unlike the definite article and the zero article, cannot be used together with attributing properties that modify the whole class of referents, such as *scarce*, or *extinct* (Krifka et al., 1995, p. 10)

The uses of the three articles for generic reference also differ in other respects. Celce-Murcia et al. (1999) regarded the generic pattern ‘*a* + singular noun’ as the most concrete and colloquial way of expressing a generality, compared to ‘*the* + singular noun’, ‘*the* + plural nouns’, ‘zero article + plural nouns’, and ‘zero article + noncount nouns’. Here is an example to illustrate the type of context where *a* is used to express an informal generality:

14. (Mrs. X to Mrs. Y) I don’t know about you, but I think *a* husband should help out with the housework.

According to Celce-Murcia et al., if we substitute *husbands*, or *the husband* for *a husband* in sentence 14, the meaning would not change but the register would shift to a less formal kind.

*A before noncount nouns*

As discussed above, the indefinite article is generally used before singular count nouns. But there are exceptions to this rule where *a* can be used with normally noncount nouns or proper nouns. Here is a set of examples given by Quirk et al. (1985, p. 287):

15. a. She played the oboe with sensitivity.

   b. She played the oboe with *(a)* charming sensitivity.

   c. She played the oboe with *a* sensitivity that delighted the critics.

Grammarians consider it hard to define the exact conditions under which *a* is used with noncount nouns, but suggest that if the noun refers to a personal quality and if the noun is premodified and/or postmodified, the use of *a* will be more acceptable than the zero article. Sentences 15a-c manifest an increasing degree of modification for the noncount noun *sensitivity*, hence a higher acceptability of *a*.¹
Bergsnev (as cited in Celce-Murcia et al., 1999) noticed that *a* can often be used in generic reference before abstract nouns that are derived from verbs and adjectives as an alternative to the use of the zero article before such abstract nouns.² For instance,

16. a. Dependence on drugs is increasing.

   b. *A* dependence on drugs is increasing.

Other abstract nouns that can be used both ways include *achievement, decrease, depression, emphasis, growth, priority, strain, success* and so on.

Bergsnev observed that hard science texts seem to prefer to use the zero article while texts in the humanities seem to prefer to use the indefinite article with abstract nouns, as illustrated in sentences 16a-b. He suggested that the degree of concreteness and informality of the context corresponds with the acceptability of the indefinite article used before abstract nouns.

**A before proper nouns**

Another kind of exception to the general rule of the indefinite article is its use before proper nouns as in the following sentence:

17. *A* Salvador Dali paid a visit while you were away.

Using the indefinite article in this way seems to have reclassified the proper noun as a common noun, and makes the referent adopt the meaning of *a certain person self-claimed as Salvador Dali*. The person is probably not recognizable to the speaker. Otherwise, the speaker is likely to say *Salvador Dali paid a visit*, if he knows the person, or even say *The Salvador Dali paid a visit* with *the* pronounced in an emphatic way, if the speaker wants to emphasize that the visitor is the world renowned Spanish artist that the hearer must have heard of.

To sum up, as we can see from the above grammatical rules, the indefinite article is usually used with singular countable common nouns but in some contexts it can also be used with noncount nouns and proper nouns, which is likely to be difficult for L2 learners. Learners will need to develop a dynamic view of countability in order to use the indefinite article correctly. Descriptive grammar is concerned about teaching the rules of article usage but scant attention is paid to the semantic and pragmatic meaning encoded by articles. To better
understand the contexts where articles are used, a visit to the linguistic literature on article semantics is helpful.

2.3 Article semantics

As introduced earlier, the indefinite article can be used either in a referring way (i.e. ‘specific’) or in a non-referring (i.e. ‘non-specific’) way. Specificity is an important referential feature encoded by articles. The specific-non-specific distinction is pertinent to the use of all the three articles although this semantic distinction is not overtly marked by articles in English. On the other hand, the referential feature of definiteness determines whether the definite article or the indefinite article should be used. But these two referential features, namely, specificity and definiteness, cannot account for all the uses of articles. The indefinite article can be used to refer to individuals as well as to kinds or classes. This generic-non-generic distinction is another referential feature that is worthy of our attention for understanding article acquisition. This section will introduce the linguistic literature on specificity, definiteness and genericity to pave the way for understanding the SLA literature that has operationalized these concepts in various ways. More importantly, a close examination of these semantic features will provide a foothold for the definition and coding of these semantic features for the current research.

2.3.1 Specificity

‘Specificity’ is a notion that figures in the earliest studies of article acquisition. But researchers in applied linguistics used it taking it for granted that its meaning is clear to all of us, or else they only provided a brief intuitive pre-theoretic definition: ‘specific’ means the speaker has a particular referent in mind. The trend of making the definition of specificity an issue in this research area seems to have started with Ionin (2003, 2006), and Ionin, Ko and Wexler (2004), who argued that learners’ overuse of the in specific indefinite contexts and overuse of a in non-specific definite contexts are both the result of the mis-setting of the article choice parameter. According to them, definiteness and specificity are two settings of the article choice parameter, on which their Fluctuation Hypothesis hinges. Therefore, it is essential that there are solid definitions of these two key concepts. Further discussion of the SLA studies will be delayed until I have discussed the relevant linguistic literature. In this section I will start with the issue of specificity. The notion of specificity can be divided into
two distinct phenomena: semantic specificity and pragmatic specificity, both of which are related to learners’ use of the indefinite article and thus need to be distinguished.

2.3.1.1 Semantic specificity

I will first discuss the problems with the classic intuition of semantic specificity before proposing a modified version. In previous studies on article acquisition, the most widely used definition of specificity is expressed in the following way:

When a speaker makes a specific reference, he has a particular entity in mind rather than an arbitrary member of the class.

This definition is clear at first glance, but it cannot stand scrutiny as it is underspecified in a number of aspects. Let me break down the definition into several components and examine them one by one.

1) Is specificity all about the speaker’s perspective?

Not necessarily so. If the sentence has a person other than the speaker as the subject, the definition does not seem to apply. We have to modify the definition to account for such situations. To illustrate with the following examples:

18. a. George: I met a (certain) student from Austin today.
   b. I: George said that he met a (certain) student from Austin today.

   (Yeom, 1998, p. 69, ex. 23)

Sentence 18a is a typical example of the speaker having a particular referent in mind, while the referent student still seems to be specific in sentence 18b despite the fact that the speaker is not the one who has direct contact with the referent. Can we still say that the speaker has a particular referent in mind in situations like 18b? Yeom (1998) advanced an acquaintance relation called ‘cognitive contact’ (cc, hereafter), which can explain how the speaker as well as someone other than the speaker can particularize a referent. A’s having cc with B means that A knows (not necessarily personally) who B is. A difference between the specific and non-specific use of indefinites lies in that the former involves cc, while the latter does not. The role of cc is not necessarily to pick out a unique entity but to provide some procedure to pick out the referent. Importantly, cc is transitive. (I will talk more about ‘cognitive contact’ later, as it is not without problems). In the above two sentences, George has cc with the
student (i.e. George has a particular student in mind) and this specificity effect is maintained through a chain of communication from George to the speaker ‘I’. Even when the speaker stands in no direct cc with the referent, the specificity effect can still be preserved. Here is another example.

19. John saw a certain woman, but I don’t know who she is.

(Yeom, 1998, p. 69, ex. 22)

In sentence 19, John is the person who has cc with the woman, while the speaker has no direct cc with her. Through some chain of communication, the speaker learns that John saw a certain person and the person is a woman. Although the speaker is not in a position to personally identify the woman, he gets to have indirect cognitive contact through the medium of John who has direct cc with the woman.

Whether it is the speaker or the subject of the sentence who has a particular referent in mind boils down to the distinction between ‘speaker specificity’ and ‘subject specificity’. The former is absolute specificity while the latter is relative specificity. This distinction is especially clear in the following sentence that involves a universal quantifier.

20. According to Freud, every man unconsciously wants to marry a certain woman—his mother.

(Hintikka, 1986, p. 332, ex. 2)

In sentence 20, there is a specific woman for each man, and the speaker cannot and does not need to know who they are individually. The specificity of woman is by no means absolute, but is a co-variant for each man. Von Heusinger (2002) reconciles absolute and relative specificity by explaining specificity as ‘referential anchoring’. A specific expression is referentially anchored to (i.e. functionally dependent on) the speaker of the utterance, as in 18a, or to another object in the discourse, as in 18b, 19 and 20. Heusinger’s referential anchoring encompasses and goes beyond Yeom’s cognitive contact explanation, because it can explain the context involving quantified NPs where it is hard to say there exists a chain of communication from the subject to the speaker.

To summarize the answer to the first question, it is not always the speaker who has direct contact with the referent. It could be some other salient agent or subject of the sentence as well. The current study recognizes the ‘specificity’ status of both absolute and relative
situations and will assign the same code to them as long as they meet the specificity definition which will be put forward later.

2) What does ‘particular’ mean?

‘Particular’ and its near-synonyms ‘unique’, ‘individualized’, etc. are often seen in definitions of specificity. Sometimes, the definition ‘the speaker has a particular/unique/individualized referent in mind’ is phrased in another way but with a similar effect: ‘the speaker is able to identify the referent’ or ‘the referent is identifiable to the speaker’. On closer examination the key words here turn out to be very vague. How much information on the referent does the speaker need to have in order to be able to conceive of it as a particular referent, or in other words, to be able to identify it? The underlying problem is that the specific-nonspecific distinction is actually a cline, rather than a clear-cut categorical concept. Let us compare the following two situations.

21. A friend who I telephoned yesterday will come to see me this afternoon.

22. I spoke to a police officer on the phone but I don’t know who he was.

The indefinites in these two sentences could be distinguished as ‘strongly specific’ and ‘weakly specific’ in Ludlow and Neale’s (1991) terms. The speaker has more personal and detailed information about the referent in sentence 21 than in sentence 22. In the former, the speaker knows the referent as a friend and has previous contact with the referent, while in the latter, the speaker merely spoke to a certain police officer and has no other contact beyond a phone conversation. The speaker will not be able to identify the referent even if they meet. We can say that the speaker has a more concretized image of the referent in 21 than in 22 but do we regard the former as more identifiable than the latter? It really depends on how we view ‘identifiability’. Knowing the actual identity of the referent through direct or indirect personal acquaintance is a matter of ‘objective identifiability’. Objective identifiability is sufficient but not necessary for specific reference. The kind of ‘identifiable’ pertinent to the current study’s definition of specificity is independent of whether the speaker can objectively attach a name to the referent or know some of the attributes of the referent. What matters is whether the speaker can construct a unique representation of the referent. The notion of ‘constructing a unique representation’ is originally proposed by Gundel, Hedberg, and Zacharski (2001) to account for definite descriptions. I find this account equally applicable to
specific descriptions, because it in fact sets the lowest criterion that licenses a specific reference and is capable of explaining contexts where objective identifiability is lacking.

To construct a unique representation of the referent does not require the speaker to objectively identify the referent. Nor is it necessary to pick out the referent or to distinguish the referent from the other members of the same category. Back to sentences 21 and 22, the speaker can equally well construct a unique representation of the referent in both contexts. How many additional attributes can be attached to the unique representation is out of consideration. This account meshes well with Haspelmath’s (1997) and Geurts’ (2010) observations that a specific indefinite can be either known or unknown to the speaker. Haspelmath found in quite a few languages that specific markers are allowed to be used when the speaker cannot identify the referent. To give an example in Kannada,

23. Raamu-vige **yaavud-oo** ondu pustaka beekaagide.

   Ramu-DAT which-INDEF one book want: having: is


   (as cited in Haspelmath (1997, p. 47, ex. 99))

In Kannada, indefinites of the WH-oo-series are invariably specific and convey the meaning that the speaker cannot identify the referent. The identification here is a question of physical identification, akin to the concept of ‘objective identifiability’ mentioned earlier. As we can see, to explain specificity in terms of ‘identifying’ can be misleading. Thus I find it necessary to avoid using this term and replace it with ‘constructing a unique representation’. To better understand what it means to construct a unique representation, the following lottery ball metaphor may help a bit to explain how a speaker can construct a unique representation of the referent when he has minimal objective identifying clues about the referent.

24. I (looking at the table scattered with colourful balls) commented, ‘there is a golden ball on the table.’

25. I am given a chance in a lottery to take out one ball from a black box that contains myriad colorful balls. I am told by the prize-giver, ‘there is a golden ball in the box and whoever takes out the golden ball will be given a prize.’
In the first scenario I see the golden ball and can certainly pinpoint it while in the second scenario both I and the prize-giver only know of its existence and cannot possibly know its location in the box. The indefinite *golden ball* in both contexts is specific, though perhaps with a different degree of specificity to the speaker. Being able to actually see the golden ball poses no problem for the speaker to construct such a unique representation of the referent. But not being able to see where the ball is also does not interfere with the speaker’s ability to construct such a unique representation, because the speaker is assured of its existence.

Last, it should be noted that the uniqueness of the mental representation is not bound to the referent’s physical uniqueness in the world. There are cases where the referent does not exist in the physical world (to be further discussed in question 3) and there are also cases where the speaker uses *a* to single out a referent among others for further discussion. Yeom (1998) pointed out that the speaker can say *I saw a certain woman yesterday*, even if he actually saw several women yesterday. The speaker may want to talk more about a certain woman so he foregrounds her in the discourse. The use of *a* is neutral to uniqueness. The speaker’s ability to construct a unique representation of the referent implies a kind of referential intention and does not necessarily have to be in line with the physical (non-)uniqueness of the referent.

3) What does ‘entity’ mean in the definition?

The ‘entity’ the speaker has in mind is a mental representation. It does not necessarily have to be an individual in the real world. Accordingly, whether the referent exists in reality is irrelevant to our use of a specific expression. For instance,

26. There is a weird cat that is always grinning from ear to ear in Alice’s dream.

The grinning Cheshire Cat is nowhere to be seen living in our real world. Instead, it is a fancy character in the world of the book *Alice’s Adventures in Wonderland* written by Lewis Carroll. The speaker can think of such a unique mental image and therefore can refer to it in a specific way.

4) What does ‘have something in mind’ mean?

Previously, I introduced Yeom’s cognitive contact account to explain specificity. After the discussion of question 2, we can see that the notion of cognitive contact needs to be modified if it is to be used to explain specificity. The contact is not in the sense that the speaker knows who the referent is but in the sense that the speaker can mentally construct a unique
representation of the referent. Incidentally, the modification of the concept does not harm the argument that the specificity effect can be transferred through the chain of communication or that a specific expression is referentially anchored to either the speaker or to another individual in the sentence.

So far I have discussed various problems with the common intuition of specificity. I will conclude this section with a modified definition of specificity and a summary of the important ideas discussed above:

The current study intends to define specificity (i.e. semantic specificity) in the following way: a referent is specific if the speaker is assumed to be able to construct a unique mental representation of the referent.

a) The speaker does not necessarily have to have direct contact with the referent. The person responsible for the specific referent can be a surrogate speaker (i.e. the subject of the sentence or some other salient agent in the discourse).

Example:

27. Paul said he had seen a movie yesterday.

b) The speaker is not required to be able to objectively identify the referent. Objective identifiability is a sufficient but unnecessary condition for a specific reference. The difference is analogous to the speaker’s referring to an object lying somewhere in the dark as opposed to referring to the object visible to him or her.

Example:

28. A self-claimed journalist called to interview the rising star but he refused due to ignorance of the journalist.

c) A specific referent need not be something that exists in the real world. It can be something that exists in the imaginary world as well as long as the speaker can construct a unique mental representation of the referent.

Example:

29. Once upon a time, there was a hobbit called Frodo Baggins.
2.3.1.2 Pragmatic specificity

Givón (1984) distinguished semantic specificity and pragmatic specificity, commenting that the latter is an indicator of communicative importance, a more important aspect of human language than pure referential uniqueness of noun phrases indicated by semantic specificity.

Semantic specificity concerns whether the referent is assumed by the speaker to exist as a unique individual or an arbitrary individual of the category while pragmatic specificity takes into account a speaker’s intent to refer to some individual. Semantic specificity reflects the logico-philosophical tradition where the roles of speaker and listener in communication are disregarded. In contrast, pragmatic specificity diverges from the logical tradition and emphasizes the referential intent of the speaker in communicative contexts.

Givón (1984) noted that the morpho-syntactic marking systems in natural languages tend to code pragmatic specificity rather than semantic specificity. Noun phrases that are semantically specific but pragmatically non-specific (i.e. whose exact referential identity is communicatively unimportant) are marked in the same way as those that are semantically non-specific in some languages. Here are Givón’s examples from Israeli Hebrew (only the English translations are provided below):

30. a. …so I went out into the street and moved on a bit and then entered a bookstore and bought a book that my wife had wanted for a long time; and then I went back home and gave it to her, and she was very happy, because it was a book that…

       b. …so I went out into the street and moved on a bit and then entered a bookstore and bought a book and spent some time there looking at magazines, and then I went home and washed up and ate…

   (Givón, 1984, pp. 424-425, ex. 59 & 60)

In the above two sentences in Israeli Hebrew, a book is marked differently despite the fact that it is semantically specific in both contexts. It is marked by the numeral one as suffix (-xad) in Israeli Hebrew in the first sentence but unmarked in the second sentence, reflecting a difference in their communicative importance in the two discourses. A book is pragmatically specific in the first context as it is mentioned again several times after being introduced and becomes an obvious topic of the discourse. In the second context, the referential identity of
the book is not important, as the speaker does not intend to elaborate on the book per se, but only mentions it to introduce a ‘book-buying’ event.

Cross-linguistically, pragmatic specificity plays a bigger role than semantic specificity in human languages. Givón proposed that the feature ‘pragmatic specific’ implies ‘semantic specific’. Trenkic (2008) made a similar remark: ‘the intention to refer presupposes that the speaker has a particular referent in mind, but the opposite does not hold’ (p. 3). In the research reported in this thesis pragmatic specificity is treated as independent of semantic specificity. The speaker can continue to talk about an entity regardless of its referential uniqueness. For example,

31. He wants to marry a blonde. She must be tall, rich and beautiful.

In sentence 31, the blonde does not refer to any unique individual but refers to any member that fits the description ‘tall, rich and beautiful’. The semantic non-specificity of the referent does not prevent the speaker from continuing to talk about it as a representative member of the type. In this research, pragmatic specificity is regarded as a referential intention manifested in topic continuity and it is not tied to a semantically specific referent.

It is worth noting that some languages such as Israeli Hebrew and Samoan have devices to mark pragmatic specificity while other languages such as English (if we do not consider non-demonstrative this as a specific indefinite article) have no morpho-syntactic devices to explicitly mark the difference in pragmatic specificity. As we can see in the English translation of the book example in 30, the same indefinite article is used before the noun book, distinguishing neither context. Thus we cannot tell the speaker’s referential intent or the communicative importance of the referent from explicit markers but can only deduce them from the broader discourse. Besides, the English article system not only does not encode pragmatic specificity but also does not encode semantic specificity. This leads to queries on whether specificity affects learners’ choice of articles, and which kind of specificity plays a part if it does affect article usage.

Previous SLA studies have attempted to explore the potential effect of specificity on learners’ choice of articles, but conflicting results have arisen due to different ways of operationalizing specificity. For the current study, I found it necessary to code both semantic specificity and pragmatic specificity. The two concepts are related but essentially different. Semantic specificity is more or less a sentence-scoped phenomenon while pragmatic specificity is a
discourse-scoped phenomenon. We can often tell whether or not a referent is semantically 
specific from a single sentence, independent of the broader discourse, though contexts where 
semantic specificity is hard to distinguish also abound. Pragmatic specificity usually cannot 
be perceived from a single sentence in the case of English, as English does not have any 
surface markers (except non-demonstrative this) to code pragmatic specificity. It comes down 
to a matter of inference from the subsequent discourse. At this stage, it is unknown which 
kind of specificity affects learners’ choice of articles if ‘specificity’ does have a role to play. 
Coding both types of specificity will provide richer descriptive data and preserve the 
possibility of teasing these two notions apart as potential factors affecting learners’ 
acquisition of articles.

What should we look for if we want to code pragmatic specificity? It is usually not easy to 
determine pragmatic specificity by merely looking at the sentence where the indefinite article 
occurs. The speaker’s intention to refer is usually manifested by giving more information 
about the referent after an initial introduction. Givón (1984) observed that ‘pragmatic 
referentiality is correlated with high topical persistence vis-à-vis the subsequent discourse’ (p. 
427). Givón’s observations were based on those languages with overt morphological devices. 
It is not surprising that, when a speaker uses some device to suggest his or her referential 
intention, the marked referent is likely to persist for some length in the discourse as a topic. It 
merits a mention that the ‘topic’ here does not mean the general theme of the discourse; 
instead, it is something that constitutes the focus of a minor discourse on which comments are 
made. It may or may not persist very long, unlike the general topic around which the whole 
discourse is built.

Following Givón’s methods in measuring topic persistence, C. Brown (1983) analysed a total 
of 1513 clauses from a thriller novel to explore how different grammatical devices code topic 
continuity in English written narrative. Indefinite referentials, one of the construction types in 
Brown’s investigation, were found to have a low persistence in discourse. Persistence (also 
called ‘decay’ elsewhere) in Brown’s study was measured by the number of clauses in which 
a token appeared referring to the same person or thing introduced earlier. Brown suggested 
that the low persistence of indefinite referentials might be related to an interaction with their 
low ratio of humanness. The indefinite referentials in the selected discourse are mostly non-
human referents. People generally take a greater interest in humans than in objects and are 
more likely to make humans a topic than non-humans, which may partly explain the low 
persistence of these indefinite referentials. It is easy for us to understand that in a discourse
only a limited number of indefinite referents will be mentioned again or even developed into a real topic. The majority of indefinites may only appear once as background information; hence the need to code semantic specificity apart from pragmatic specificity in English. For those referents where the speaker’s referential intention is not perceived, it is still necessary to examine them in a semantic sense.

If we want to investigate whether pragmatic specificity affects learners’ choice of articles, for example, biasing the learner in favour of the definite article in a pragmatically specific context as previous studies found (e.g. Ionin et al., 2004), we need to find a way to measure pragmatic specificity. A speaker’s referential intention is most clearly shown if a word, or its synonym, hyponym or other co-referent, is immediately mentioned for the second time subsequent to the clause where it is introduced. In natural discourses, such easy-to-judge contexts are not often found. The current study is going to employ a relatively lenient way of measurement, counting both explicit co-referentials and elaboration on the referent without exactly mentioning the referent. For instance,

32. I saw a beautiful cat on campus the other day. The cat/it/its name is Governor Grey.

After a referent is mentioned (e.g. a cat) for the first time, the speaker can refer to it again repeating the same noun modified by the definite article (the cat), or using a pronoun (it), a possessive construction (its name) or other associative devices. They are all counted as the obvious follow-up of the referent and the first-mention referent (a cat) can be coded as pragmatically specific.

33. Puff, the magic dragon experienced a great change in life. His life-long friend Jackie Paper grew up and came no more to play with him. Puff was not happy ever since.

The great change in sentence 33 will also be coded as pragmatically specific. The referent change is not mentioned again, but it is discussed as a topic. When the subsequent discourse contains further elaboration of the referent, the speaker’s referential intention can be inferred.

Finally, a few more words on the relationship between semantic specificity and pragmatic specificity are needed. As discussed above, pragmatic specificity is manifest in the continuation of the topic in the following sentences. Sometimes, semantic specificity should also be inferred by looking beyond the sentence when the sentence itself does not provide sufficient information. Usually, there will be some lexical or grammatical features in the
sentence that signal the referential uniqueness of the referent. The following are some diagnostic devices that can help us decide on the semantic specificity of contexts.

2.3.1.3 Diagnostic devices

Certain modifying expressions, sentence types, and sentence structures (e.g. relative clauses) exhibit a high correlation with (non-)specificity. This section will briefly introduce the oft-used diagnostic devices that favour a specific or non-specific interpretation.

1) Modifiers

*Certain, particular, and non-demonstrative* this are perhaps the three most mentioned modifiers that favour a specific reading. With ambiguous indefinites, we can insert these modifiers to test the specificity of the referents. Nevertheless, it should be noted they are just loose cues indicating specific contexts. There are specific contexts that they do not fit.

34. Alice drank from *a (certain)* mysterious bottle and then shrank to the size of a rabbit.

35. *A (particular)* man wrote this book under a pseudonym.

36. *This* girl in the syntax class cheated on the exam (uttered with no such girl in the immediate neighbourhood).  

   (Fodor & Sag, 1982, p. 360, ex. 16)

2) Sentence types and structures

Certain sentence types (e.g. interrogatives, imperatives, negatives, etc.) are found to correlate with non-specific contexts but only in a very rough way. In fact, the level of descriptive richness is likely to override an otherwise non-specific reading. There are also some sentence structures (e.g. existential-*there*, relative clauses, etc.) that favour a specific reading.

Interrogative:

37. Did you write *a* letter to your parents?

   (Karttunen, 1968, p. 18, ex. 29)

Imperative:

38. Pass me *a* hammer.
Negative:

39. a. Sandy didn’t see a squirrel.
   
   b. Sandy didn’t see a squirrel that was chasing its tail around the oak tree.
   
   (Fodor & Sag, 1982, pp. 359-360, ex. 9 & 11)

The indefinite in sentence 39a is a typical non-specific referent under negation but the same indefinite takes on a specific reading in 39b—still under negation! The different interpretations are related to how the referent is described and presented, rather than bound to a certain sentence type.

Copular sentences:

It is generally agreed that indefinite NPs are non-referring (i.e. non-specific in our definition) when they are in post-copular positions (Karttunen, 1976).

40. Jane Austen is a writer.

41. Aphrodite is the goddess of love.

Copular sentences like 40 and 41 are (if not uniquely) correlated with a non-specific reading. In 40, the indefinite a writer is a role, a categorical type, rather than a value as an instantiation of the role. Similarly, the goddess of love in 41 is a kind of identity for the Greek goddess Aphrodite. If we want to further distinguish these two sentences, to use Lyons’ (1977) terms, 40 is an ‘ascriptive’ sentence as the post-copular element ascribes to the subject a certain property, while 41 is an ‘equative’ sentence where the subject and the complement are identified with each other, thus reversible in position. The distinction here (also respectively called ‘predicational’ and ‘equative’ sentences by Higgins (1973)) does not concern us, but can help us understand non-specific contexts.

Existential-there:

42. a. There is a cockroach in my soup.
   
   (Karttunen, 1968, p. 18, ex. 31)

   b. There is a man who rang this morning asking to see you.
Karttunen gives sentence 42a as an unambiguously non-specific reading favoured by existentials. It must be noted that there constructions do not force a non-specific reading, not in 42a according to our definition of specificity, and even less so in 42b, which is backed up with more details indicating a specific interpretation. In fact, a there construction in the present or the past tense is a clear indicator of referential uniqueness.

Relative clauses:

Relative clauses tend to yield a specific interpretation as the clauses function as modifying constructions adding more description to the referents. 39b and 42b are relevant examples.

In sum, the above expressions and sentence types are at best illustrative and not definitive. The content of the noun phrase itself and the remainder of the sentence all help to provide clues as to the semantic specificity of the referent.

2.3.2 Definiteness

Despite the fact that this thesis focuses on the indefinite article, the notion of ‘definiteness’ is relevant for two reasons. First, indefiniteness is usually understood as the opposite of definiteness; therefore a review of the literature on definiteness may deepen our understanding of indefiniteness. Second and more importantly, learners are found to overuse the in certain contexts. A review of the literature on the use of the may shed some light on reasons behind commission errors.

This section will introduce the referential notion of definiteness from two perspectives. J. A. Hawkins’ Location Theory (1978), regarded as a hearer-oriented approach, is illuminating on definiteness. Epstein’s accessibility view (2002) addresses the article use from a speaker-oriented approach. Epstein holds that ‘article selection is an aspect of the active, dynamic process of referent construction, in which speakers construct discourse referents in such a way as to induce hearers to accept the referents into the discourse under distinct guises’ (pp. 371-372). A comparison of these two perspectives may help us better understand how ‘definiteness’ can be understood in different ways and the potential difficulty in judging whether the is used appropriately.
2.3.2.1 A hearer-oriented approach to view definiteness

The gist of J. A. Hawkins’ Location Theory can be summarized in one sentence: when using a definite article, the speaker instructs the hearer to identify some shared set of objects and locate the referent or referents within this set (i.e. set identification and referent location). This act can be further dissected into three steps (J. A. Hawkins, 1978, p. 167):

1) The speaker ‘introduces a referent (or referents) to the hearer’.

2) The speaker ‘instructs the hearer to locate the referent (or referents) in some shared set of objects’ (which can be a shared immediate physical situation, a previous discourse, or a more general situation).

3) The speaker ‘refers to the totality of the objects or mass within this set which satisfy the referring expression’. If there is only one such object, totality can be understood in the sense of uniqueness. If there is more than one such object, totality means inclusiveness. Or we can simply regard inclusiveness as embracing the meaning of uniqueness in the singular case.

J. A. Hawkins illustrated some major usage types of the definite article with this theory. He categorized these usages into: anaphoric and immediate situation uses, larger situation uses, and associative anaphoric uses.

Anaphoric uses:

43. Mary travelled to Munich. The journey was long and tiring.

Here the shared set is the hearer’s memory store, or more precisely, the shared previous discourse set. The speaker enters an object into the hearer’s memory store and uses the definite article to signal to the hearer that he should pick out this object from his memory store, in other words, the object previously mentioned in the discourse.

Immediate situation uses:

44. Pass me the bucket.

If an object is visible to both the speaker and the hearer in the situation of utterance, and the object is unique, then the speaker can refer to the object with the definite article, and the hearer will have no difficulty locating the object in the physical situation. In this example, if there is one unique bucket within the sight of both the speaker and the hearer, the speaker can
refer to this bucket with the definite article, and the hearer will be sure to know which bucket
the speaker intends.

Larger situation uses:

45. The Prime Minister has just resigned.

In this usage, the speaker is appealing to the hearer’s knowledge of referents which exist not
in the immediate physical situation, but in the larger situation. But there is also the step of set
identification before the step of referent location occurs. That is to say, the hearer has to
decide which shared set is intended by the speaker. Here the situation of utterance plays an
important disambiguating role in larger situation uses in the same way it does in immediate
situation uses of the. The above example can be understood to refer to different objects
according to the different shared sets identified by the hearer. If the interlocutors have as their
focal defining point the immediate situation of utterance in which the conversation takes
place, the Prime Minister refers to the one in the place where the conversation occurs. On the
other hand, if the speaker and the hearer come from the same country, they can also have
their common origin as their focal point, and then the Prime Minister may refer to the one in
their own country rather than the one in the place where the conversation occurs. In addition,
on some occasions it is optional whether the hearer has to have particular knowledge of the
referent in order to locate it in the situation. J. A. Hawkins suggested such an example: at a
wedding, if I was just a guest who might not know anything at all about the bridesmaids. A
first-mention of the bridesmaids to me would still be possible, because I have the general
knowledge that weddings typically have bridesmaids. The Location Theory holds that in
larger situation uses, as long as there is a general knowledge of the predictability of the
objects in question, it does not matter whether the hearer has to have more specific
knowledge of the objects. This is one advantage that the Location Theory has over the
familiarity hypothesis first put forward by Christopherson (1939) which considers the as a
signal of familiarity to both the speaker and the hearer. The familiarity hypothesis cannot
account for the use of the in the above situation.

Associative anaphoric uses:

46. The man drove past our house in a car. The exhaust fumes were terrible.

In this sentence, the first noun car serves to trigger relevant associations. Among these
associations, the exhaust fumes can be located. The underlying principle of associative
anaphoric use is the same as previous uses: the hearer is instructed to locate a referent in a shared set. The shared set here is the triggered associations.

By and large, the Location Theory proves effective to explain the definite article in the above usage types but there are some contexts that defy a good explanation in this way. These occasions include first-mention nouns denoted by the definite article when there is no shared set between the speaker and the hearer. The use of the definite article cannot be justified in such situations, as it does not meet the appropriateness conditions that license the definite reference. The following is an abbreviated version of the four appropriateness conditions laid out by J. A. Hawkins (1978):

1) Set existence condition: the speaker and hearer must indeed share the set of objects that the definite referent is to be located in.

2) Set identifiability condition: the hearer must be able to infer either from previous discourse or from the situation of utterance which shared set is actually intended by the speaker.

3) Set membership condition: the referent must in fact exist in the shared set which has been inferred.

4) Set composition conditions: the number of linguistic referents referred to by the definite description must not exceed the number of objects of the appropriate kind in the shared set. (p. 168)

As we can see, the Location Theory lays much emphasis on the hearer’s knowledge. J. A. Hawkins argued that a speaker using the definite article in ‘good faith’ should see to it that these appropriateness conditions are met. The phrase ‘good faith’ indicates that a speaker of good intention (in the sense of trying to carry out efficient communication) should take into consideration the hearer’s knowledge rather than speaking in a wayward manner. If these conditions are not met, to wit, in the absence of hearer’s knowledge, the speaker’s choice of the definite article may be regarded as an inappropriate or inconsiderate act. A phenomenon from L1 acquisition studies may support this. Children learning English as their first language tend to overuse the definite article to refer to a specific object of which the hearer has no prior knowledge, in other words, in a context where the appropriateness conditions are not met. It is suggested by some researchers that this reflects children’s ego-centrism. Such overuse would probably be less tolerated in the case of adults.
For all its explanatory power the Location Theory cannot account for all the usages of the definite article. Epstein (2002) proposed a different perspective to view definiteness, which can explain those uses of the definite article with first-mention nouns that seem at first glance unwarranted by the Location Theory.

2.3.2.2 A speaker-oriented approach to view definiteness

The meaning of the definite article as understood on Epstein’s account is to signal the accessibility of a discourse referent, more specifically the availability of an access path through a configuration of mental spaces or cognitive domains. The difference between Epstein’s account and J. A. Hawkins’ theory is that Epstein placed emphasis on the speaker’s initiative, while J. A. Hawkins stressed the hearer’s knowledge. Epstein found that in some contexts the speaker can use the definite article as a signal to the hearer with respect to how the speaker intends a discourse entity to be constructed. His account recognizes the speaker’s role in guiding the hearer in establishing mental spaces and appropriate connections between the elements in those mental spaces.

Epstein’s account is very attractive in that it explains those uses of the definite article with first-mention nouns unlicensed by the Location theory. He perceived that the definite article can be used to signal high topicality or discourse prominence (including an emphatic or stressed use of the) and a shift to a non-canonical point of view, among other functions. It is worth mentioning that his examples are gleaned from naturally occurring discourse. To quote some examples from him to illustrate these two functions:

High topicality or discourse prominence:

47. M: Do you hear about the fight?
   
   A: What fight?
   
   M: About Bob and Grandpa…

This example is drawn from a natural conversation between the author (A) and his mother (M). Although A knew very well that M had not heard about the fight, as in theoretic terms, the fight was unidentifiable to A, M chose the definite article to signal to A that he intended the fight to be the next topic, which would be elaborated on later. Here is another example that you can easily imagine happening in real life. When news came out that Princess Diana had had a fatal traffic accident, people in Britain would probably start conversations with
‘Have you heard about the crash?’ It does not matter whether or not the hearer has already heard of the crash as the speaker surely intended it as a topic to be pursued. The definite article signals that the noun denoted will be the primary topic of concern in the immediately following discourse.

Here is an example that shows the emphatic or stressed use of the, which is also an index of discourse prominence although slightly different from a pure topic introduction marker.

48. You met THE Bill Clinton?

By choosing the definite article, the speaker ‘cues the hearer to construct the discourse entity under the guise of a highly prominent object’, in other words, as an especially important member of the category (Epstein, 2002, p. 355). The use of the in this example can also be regarded as a topic introduction marker, as this example is highly suggestive of a continuation of the discussion of the object mentioned. For clarification, there can be other emphatic uses of the to express strong emotions without a willingness to further discuss the object as a topic. As we can see, the choice of the definite article for such rhetorical communicative purposes cannot be accounted for by the Location Theory which requires a unique location of the referent in a shared set for the hearer.

A shift to a non-canonical point of view:

49. In the late summer of that year we lived in a house in a village that looked across the river and the plain to the mountains. (It is the opening sentence from Hemingway’s A Farewell to Arms).

Epstein used this example to explain that the referents of the river, the plain, the mountains are not identifiable to the reader but identifiable only to the narrator. By using the definite article, the author encourages the reader to adopt the point of view of the narrator, or sometimes, the view of a protagonist in literary works.

As we can see, the above functions of the definite article are effectively explained from Epstein’s speaker-oriented approach. These functions allow the speaker to mark first-mention nouns with the definite article in the absence of the hearer’s prior knowledge. The definite article in these cases requires the hearer to set up a new mental space waiting for the referent to be located within, instead of locating a referent in an already existing mental space, or a shared set in J. A. Hawkins’ terms. Epstein pointed out that accessing information from
contexts such as the immediately preceding utterance (i.e. the (associative) anaphoric use of *the*) and the physical setting of the speech situation (i.e. the immediate situation use of *the*) is relatively inexpensive in terms of processing efforts. As mentioned above, these are among the major usage types of *the* licensed by the Location Theory. The speaker’s consideration for the hearer’s knowledge can be thought of as saving the hearer’s processing efforts. That is why this kind of speaker is considered by J. A. Hawkins to be people using the definite article in good faith. In contrast, the speaker’s use of the definite article to mark first-mention objects exacts a high processing cost on the hearer’s side because it requires the hearer to hold the object in short memory until the object is further elaborated.

Following Epstein, I suggest that we can integrate the above two functions and consider them as both instructing the hearer to forsake his or her own point of view and adopt the speaker’s point of view. In the case of the discourse prominence use of *the* when a new object is introduced by *the* to the hearer, the hearer will first try to locate the object in his or her own mental space. When this effort fails, the hearer may be aware that this object at the time of utterance only exists in the speaker’s mental space. He or she may choose to adopt the speaker’s point of view, in other words, to view the object in the speaker’s mental space. As this choice involves forsaking one’s own point of view, the speaker will weigh the costs and gains. In literary works, the hearer/reader is most willing to do so, as he or she accepts the narrator’s authoritative position, and allows himself/herself to be manipulated by the narrator’s view point in order to have vicarious pleasure from a literary work. In daily conversations, it is not easy for the hearer to do this. Some types of things are better accepted as definite first-mention objects than others, things that are interesting, unusual, and significant either politically or culturally, or have other attributes that merit attention. But there are also occasions when mundane things are accepted. It is probable that among friends on good terms, the hearer will be more willing to sympathize with the speaker and adopt his or her point of view, even when the speaker is using the definite article to mark a common object, which is special only in the view of the speaker. Among people of a more distant relation, the hearer will not be equally willing to adopt the speaker’s viewpoint. Thus the use of the definite article to denote a first-mention mundane object is likely to be less tolerated.

This account of when people may accept first-mention referents with the definite article is just my intuitive understanding. The level of acceptance varies from person to person and from context to context, which is beyond the scope of this thesis. The essential idea from Epstein is that the speaker’s communicative purposes can play an important role in article
choice and these communicative purposes may license some of the article usages that are deemed as inappropriate from the perspective of J. A. Hawkins’ Location Theory. This also accounts for the potential difficulty of judging whether a learner has used the definite article appropriately in writing. On some occasions, both the indefinite article and the definite article are acceptable as the difference is a matter of perspective rather than grammaticality.

2.3.3 Genericity

Languages differ in the way they use articles to mark genericity. For instance, in Romance languages such as French and Spanish definite plurals can be used to express genericity whereas in English definite plurals do not usually convey generic meanings as can be seen from the simple French sentence *Les tigres sont beaux animaux* (whose English equivalent is *Tigers are beautiful animals* rather than *The tigers are beautiful animals*). Both definite and indefinite expressions can be used in the generic context but the current research is only concerned with the generic use of the indefinite article.

2.3.3.1 Generic *a*

Before we proceed to discuss the generic use of articles, we need to clarify what we mean by ‘generic’, a question that is often neglected in discussions of the semantic function of articles. There are two different phenomena that fall under the rubric of ‘genericity’: the first is reference to kinds and the second is generalization (Krifka et al., 1995). The former is a feature of NPs (sometimes referred to as ‘D-genericity’) while the latter is a feature of the whole sentence (sometimes called ‘I-genericity”).

50. The potato was first cultivated in South America.

51. John smokes a cigarette after dinner.

52. The potato is highly digestible.

(Krifka et al., 1995, pp. 2-3, ex. 1a, 2a, 3b)

In 50, *the potato* is called a kind-referring NP or generic NP as opposed to an object-referring NP. For 51, the whole sentence reports a generalization over events rather than a particular episode. Sentences like 51 are called characterizing sentences or generic sentences as opposed to particular sentences that report specific or isolated facts. Sometimes the two types of genericity can co-occur in one sentence, as in 52. *The potato* is a kind-referring NP and the
sentence itself expresses a generalization. It is necessary to distinguish these two kinds of
genericity (see Krifka et al. (1995)) but unfortunately the bulk of literature discussing the
semantics of articles has not done so, leaving us with potential problems with the established
semantic frameworks for articles. To be clear, although both NPs and sentences can be called
‘generic’, I may from time to time use the term ‘kind-referring’ to discuss genericity in the
nominal system and use ‘characterizing’ for sentence-level genericity. Incidentally, in the
above sentences, a potato can replace the potato in 52, but not in 50, a point which will be
dealt with later.

How can we understand the use of the indefinite article in generic contexts? Descriptive
grammar books usually explain the generic use of a as conveying the meaning of picking out
a representative member of the class (Quirk et al., 1985). To better understand the meaning of
generic a, we can compare it with any. Any is usually used as a diagnostic test of genericity
but any is much stronger than a and may change the truth condition of the original sentence.
For example:

53. A bird can (usually) fly.

54. Any bird can fly.

Sentence 54 makes a more assertive and accordingly false statement, contradicting the fact
that there is a small number of flightless birds in the world such as the iconic New Zealand
kiwi. Therefore, we need to be aware that generic ‘a(n) + N’ does not necessarily equate with
‘any + N’; rather, it refers to a representative member.

Quite a number of linguists readily acknowledge the generic use of the definite article and the
zero article but are reserved about ‘generic a’. Jespersen (1949), for example, holds that
indefinite singular does not refer to the class in itself but refers to the class only as a
representative member. A classic test for generic NPs is to see whether they can combine
with certain ‘kind predicates’ (i.e. predicates that tend to give a kind-referring interpretation
of an argument as opposed to ‘object-level predicates’) —to name a few, die out, be extinct,
invent, exterminate, and so forth.

55. a. The dodo is extinct.

b. Dodos are extinct.

c. * A dodo is extinct.
56. a. It is generally believed that Thomas Edison invented the light bulb.

   b. * It is generally believed that Thomas Edison invented a light bulb.

For example, the predicate be extinct usually goes with subject arguments that are kinds. Both definite NP the dodo and bare plural NP dodos have passed this test while indefinite singular NP a dodo failed the test, calling into question its generic status. Similarly, a light bulb cannot be the object argument of the kind predicate invent, while the light bulb is acceptable. Back to sentences 50 and 52, be first cultivated is a kind predicate, whereas be highly digestible is not, hence the unacceptability of a potato in 50. It is one of the reasons why Krifka et al. (1995) argued against indefinite singular NPs as kind-referring because they are not in and of themselves ‘generic’ (if we exclude a taxonomic reading, which will be discussed later), but only get the ‘generic’ reading from the characterizing sentence in which they occur. There are also other reasons why indefinite singular NPs (in a non-taxonomic reading) are not kind-referring, which will not be elaborated here (see Abbott (2010) and A. Cohen (2001) for details). Carlson (1978) linked the semantic function of ‘generic a’ in descriptive grammar to its unacceptability with kind predicates. Generic indefinite singular NPs refer to the kind by picking out an arbitrary representative member of the kind; therefore, it is understandable that they only go with object-level predicates, unlike the other two kinds of generic NPs that directly refer to the class as a whole, thus allowing kind predicates like common, widespread, and so on.

The term ‘generic indefinite singular’ or ‘generic a’ is often seen in the literature. However, it is a misnomer, or we should understand ‘generic’ here in terms of the literary device of ‘transferred epithet’, as the NP itself is non-generic but rather it is the sentence that is generic, in much the same way as we can say a restless night even though it is not the night itself that is restless but the speaker. Indefinite singular NPs are the only kind of generic NPs (the other two being definite singular NPs and bare plural NPs) that are dependent on characterizing sentences for their generic interpretation. The other two generic NPs can be kind-referring in themselves. Despite the inaccuracy in nomenclature, it is necessary to retain the term ‘generic’ for indefinite singulars in order to distinguish the following contexts.

57. A lion is a beautiful animal.

58. A lion emerged from a hidden bush and scared the novice hunter to death.
Sentence 57 is a characterizing sentence that reports a kind of generalization while sentence 58 is a particular sentence that recounts an isolated event. The NP *a lion* is non-kind-referring in both sentences according to Krifka et al.’s (1995) criteria but it refers to a representative member of the class of lions in 57 as opposed to a particular member of the class in 58. Given the semantic difference in the indefinite singulars in the above sentences, it does make sense to mark indefinite singular NP in a characterizing sentence as ‘generic’.

### 2.3.3.2 Interaction between kind reference and specificity

Many SLA studies of article acquisition used a semantic framework that identifies ‘generic’ with ‘non-specific’. For example, Huebner’s (1983) semantic wheel used the [-SR] feature (i.e. ‘non-specific reference’) to describe generic contexts. In fact, equating ‘generic’ with ‘non-specific’ is common in the literature. Krifka et al. (1995) point out that the specific/non-specific distinction is not bound to the kind reference/object reference distinction, hence the cross-classification of kind reference with (semantic) specificity (as shown in Table 1).

<table>
<thead>
<tr>
<th>Kind Reference</th>
<th>Specificity</th>
</tr>
</thead>
<tbody>
<tr>
<td>+kind-referring</td>
<td>+specific</td>
</tr>
<tr>
<td>+kind-referring</td>
<td>- specific</td>
</tr>
<tr>
<td>- kind-referring</td>
<td>+specific</td>
</tr>
<tr>
<td>- kind-referring</td>
<td>- specific</td>
</tr>
</tbody>
</table>

59. [- kind-referring]

a. She is looking for *a cat* as companion. [- specific]

b. I adopted *a glamorous white Persian cat* last year. [+specific]

60. [+kind-referring]

a. *A cat* shows mutations when domesticated. [- specific]

b. *The lion*/*A cat, namely the lion* [+specific]

(Krifka et al., 1995, pp. 15-16, ex. 31)

The four sentences in 59 and 60 have illustrated all the four combinations of kind reference and specificity. 59a and 59b show that when we are talking about individual members of a
class, we can refer to a specific or non-specific member. This is not disputed in the literature. But problems arise in [+kind-referring] contexts. It should be noted that 60a and 60b involve a taxonomic reading of NPs. Here cat does not mean the small animal that people often keep as a pet, but refers to a wild animal of the cat family, such as lions, tigers, leopards, and lynxes. A cat in 60 can be paraphrased as ‘a kind of cat’. The taxonomic interpretation of NPs automatically makes them kind-referring. Under this reading, indefinite singular NPs acquire the kind-referring status.

61. a.*A cat is extinct. (non-taxonomic reading)

    b. A (certain) cat (namely the American Cheetah) is extinct. (taxonomic reading)

A cat in a non-taxonomic reading is not kind-referring and cannot go with the kind predicate be extinct, as explained above. However, the same NP in a taxonomic reading can be kind-referring and accordingly its incongruity with kind predicates has disappeared. For sentence 61b, we are talking about the American Cheetah, a species of big cats that died out 10,000 years ago. A minor caveat here: not every NP can yield a taxonomic reading. For NPs that do not have species or subspecies, say, tyrannosaur (itself a particular type of dinosaur), a taxonomic reading is impossible.

Sentences 59 and 60 have shown that specificity applies to kind predications as well as to object-level predications. To correct the prevalent misunderstanding that identifies [-specific] with [+kind-referring], ‘specificity’ is independent of kind reference. Similar to non-kind-referring NPs, kind-referring NPs can be either specific or non-specific as in 60a and 60b. The taxonomic kind reference is introduced here to clarify the relationship between kind reference and specificity but the current research is not concerned with this usage, as NPs under taxonomic readings are rarely used. The current framework separates generic uses from non-generic uses and only distinguishes between the specific and non-specific meaning in non-generic contexts, which avoids the controversy about the generic context defined by Huebner (1983). A detailed discussion of the controversy on the operationalization of referential features will come later.

This section concludes with one observation regarding the position of generic NPs in sentences. Carlson (1978) observed that ‘generic a’ only appears in subject position. Similar remarks have been made by Quirk et al. (1985). The following three sentences show that the and the zero article retain their genericity in non-subject positions while a loses it.
62. Nora has been studying

   a. the medieval mystery play.
   b. a medieval mystery play.
   c. medieval mystery plays.

   (Quirk et al., 1985, p. 281, ex. 3)

Based on this observation, the current research defines a generic NP as a non-specific NP in the subject position of a characterizing sentence and puts all the other indefinite singular contexts into the non-generic category.

To sum up, generic NPs are not expected to occur frequently in learner language given the general tendency of people to talk more about particular things than to make generalizations. Despite this fact, it is meaningful to explore how Chinese learners use the indefinite article in the generic context as previous studies reported that Chinese learners are inaccurate in the generic context (e.g. Zhou, 2008). The above discussion adds to our understanding of genericity in the nominal system and genericity as a sentence-scope phenomenon and leads to the following operationalization of genericity adopted in both the corpus study and the elicitation study:

1) Generic NPs are not further distinguished in terms of specificity. Only non-generic NPs are separated into specific or non-specific contexts.

2) Indefinite singular NPs as subjects in characterizing sentences are defined as generic NPs. Indefinite singular NPs in particular sentences or in non-subject positions are non-generic NPs.

2.4 Indefinite article in chunks

Underlying the above grammatical and semantic description of article usage is a rule-governed perspective of the indefinite article, according to which L2 learners use articles on the basis of form-meaning mapping rules, but it is not the whole picture of language use. There are chunks or formulaic expressions that may be rote-learned and produced as a whole by learners and are thus not subject to rule analysis. Learners’ use of the indefinite article in these chunks does not demonstrate how well they have mastered the rules or whether they
have sufficient understanding of the contexts where the indefinite article occurs. Therefore, the indefinite article in chunks should be treated differently from non-chunk expressions and should be coded separately.

Thus it is necessary to develop criteria for identifying chunks. The notion of chunks is fuzzy and definitions vary. Wray (2002) listed more than 50 terms used to describe aspects of formulaicity: chunks, collocations, fixed expressions, formulaic language, idioms, multiword items/units, ready-made expressions, prefabricated routines and patterns, to name a few. Researchers may use different terms, or even use the same term, to refer to slightly different things.

Wray (2002) opted for ‘formulaic sequence’ among the plethora of terms and defined it as ‘a sequence, continuous or discontinuous, of words or other elements, which is, or appears to be, prefabricated: that is, stored and retrieved whole from memory at the time of use, rather than being subject to generation or analysis by the language grammar’ (p. 9). Her oft-cited definition points out a significant feature of formulaic sequences; that is, they are retrieved as a whole from memory, which explains why we want to separate them from more creative uses of the indefinite article. Respecting Wray’s definition, my current study will use the term ‘chunks’ to refer to the same general concept but I will employ specific criteria suitable for investigating learners’ use of the indefinite article.

There are generally two approaches to identifying chunks in the previous literature: one which mainly relies on the frequency of word sequences, the other which takes into account the semantics and grammar of word combinations in conjunction with a frequency requirement (Martinez & Schmitt, 2012). To borrow Nesselhauf’s (2005) terms, the first one is a ‘frequency-based approach’, and the second one is a ‘phraseological approach’.

Biber et al.’s (1999) method of identifying chunks, or what they called ‘lexical bundles’, is a quintessential example of the frequency-based approach. They defined lexical bundles as recurrent sequences of word forms, regardless of their idiomaticity and structural status. Their study set the following criteria to extract lexical bundles from the over 40 million-word Longman Spoken and Written English Corpus (the LSWE Corpus) (pp. 990-992):

1. For three- and four-word lexical bundles, they should have a minimal frequency cut-off of 10 times per million words in a register. For five- and six-word lexical bundles, a lower threshold is applied: a minimal cut-off of 5 times per million words in a register.
2. The occurrences should occur in at least five different texts in the same register to guard against individual writer idiosyncrasy.

Biber et al. noted that idioms may be less common than lexical bundles. For instance, the idiom *kick the bucket* occurs less than 5 times per million words in fiction and even less in other registers. As Biber et al.’s definition of lexical bundles mainly relies on frequency, idioms whose frequencies meet the artificial minimum cut-off can also be counted as lexical bundles in their study. However, I decided not to set a frequency cut-off to identify chunks as it is hard to arrive at an artificial threshold for a small-scale learner corpus, and also learners produced incorrect forms of chunks which cannot be searched.

Besides, the frequency-based approach can produce a list of lexical bundles that contain meaningless word sequences, such as *is of a*, or *is the*, because incomplete structural units can occur with a high frequency in the corpus. It is hard to tell whether or to what extent these structural fragments are memorized and recalled as a whole by learners despite their high frequency. To address this problem, some studies look beyond frequency and value meaningfulness or focus on relative non-compositionality as a criterion for identifying chunks. A case in point is Martinez and Schmitt’s (2012) attempts to make a phrasal expressions list. They set up six criteria emphasizing the non-compositionality of expressions, with the aim of producing a list of non-transparent multiword expressions for pedagogical use. The six criteria include whether the expression is processed as if it were one morpheme, whether the expression is semantically transparent (i.e. whether it may cause difficulties for learners), and so forth. Such a qualitative approach to identifying chunks is highly intuitive and subjective and cannot suit the particular purpose of my study to separate chunks.

My purpose for separating chunks from the creative use of the indefinite article derives from the concern that chunks are or may not be produced on the basis of generative rules but are rote-learned and retrieved as a whole from memory at the time of use. But how can we tell whether a multiword sequence is recalled by a learner as a pre-fabricated chunk or generated online according to grammatical rules? Some expressions, such as *at a loss*, *a lot of* and *a few*, are highly idiomatic and non-compositional. It is unlikely that language learners or even native speakers subject them to grammatical analysis. Some recurrent word sequences, on the other hand, are transparent and analysable, for example, *sing a song*, *tell a story*, *a long history*, *a long time*, *a good job*, etc. Analysable though they might be, they may still be rote-learned in the first place rather than being creatively produced by learners. A learner may first
memorize the collocation *tell a story*, before he or she becomes capable of analysing the collocation into a ‘*tell a + NOUN*’ pattern. Gradually, the learner learns to fill in the slots of the pattern with more words, thus adding *tell a tale, tell a lie, tell a joke*, etc. to his or her linguistic repertoire. Thus, the answer to the previous question is that we cannot be sure in every case when we judge whether a multiword sequence is prefabricated or not. Cases differ, and individuals differ. An operational criterion for identifying chunks that suits the purpose of the corpus study will be introduced in Chapter 3.

### 2.5 Articles in L2 acquisition

In the past four decades, in the field of second language acquisition, researchers have approached the study of the English article system from various perspectives. Their efforts can be roughly categorized along two lines: investigation into the sequence and order of the acquisition of English articles and description of learners’ errors (inter alia, Huebner, 1983; Parrish, 1987; Robertson, 2000; Tarone & Parrish, 1988; Thomas, 1989), and experiments investigating the effects of teaching articles (inter alia, Master, 1990, 1997a; Pica, 1983a; Snape, Umeda, Wiltshier, & Yusa, 2016; Snape & Yusa, 2013; Whitman, 1974). Around ten years ago, Chinese researchers also began to take an interest in learners’ acquisition of English articles. They have looked mainly into English articles in Chinese learners’ interlanguage by focusing on the description of the general features of article (mis)uses (Cai & Wu, 2006; J. Li & Cai, 2001; Yan, 2003; Zhou, 2006; Zhu, 2009, among others).

As the bulk of the literature on the acquisition of articles deals with the article system as a whole and only a few targeted the indefinite article only, this review of the literature will have to introduce relevant studies investigating the article system in its entirety and try to tease out the findings for the indefinite article. This section will first introduce some important semantic frameworks used to categorize noun phrase environments where articles are used, upon which many of the subsequent studies are built. The review will centre around two kinds of misuses of the indefinite article, commission and omission. Ionin’s (2003) and Ionin, Ko, and Wexler’s (2004) Fluctuation Hypothesis, a Universal Grammar approach to examining learners’ overuse of the definite article, will be given prominence. Following the general findings from SLA studies, controversy on the operationalization of the referential features of article semantics (i.e. specificity and genericity) will be discussed to help formulate the definitions in the current research.
2.5.1 Semantic frameworks for article usage

Brown (1973), one of the earliest researchers who contributed to our knowledge of article acquisition, carried out a longitudinal study on the L1 acquisition of fourteen morphemes by three pre-schoolers. Articles were one of the morphemes under his investigation. He described the relation between definite and indefinite articles via the status of speaker and listener specificity as indicated in Table 2. He defined the key concept of ‘specificity’ in the matrix as ‘when a speaker intends a specific reference or when a listener understands a reference to be specific he has in mind not just any instance of the class or set named by a noun but some unique instance or individual of that class or set’ (p. 340).

Table 2 Brown’s matrix of speaker and hearer specificity

<table>
<thead>
<tr>
<th>Listener (as conceived by speaker)</th>
<th>Speaker Specific</th>
<th>Nonspecific</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specific</td>
<td>Definite: <em>the</em></td>
<td>Nondefinite: <em>a</em></td>
</tr>
<tr>
<td>Examples:</td>
<td></td>
<td>Examples:</td>
</tr>
<tr>
<td><em>Can I have the car?</em></td>
<td></td>
<td><em>There is a spy hiding in your cellar.</em></td>
</tr>
<tr>
<td><em>Let’s move the desk.</em></td>
<td><em>I don’t have a car.</em></td>
<td></td>
</tr>
<tr>
<td>Nonspecific</td>
<td>Nondefinite: <em>a</em></td>
<td>Nondefinite: <em>a</em></td>
</tr>
<tr>
<td>Examples:</td>
<td></td>
<td>Examples:</td>
</tr>
<tr>
<td><em>I saw a funny-looking dog today.</em></td>
<td><em>I need a new belt.</em></td>
<td></td>
</tr>
<tr>
<td><em>John tried to lift a piano yesterday.</em></td>
<td><em>I want to catch a fish.</em></td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>I talked with a logician.</em></td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>I am looking for a book.</em></td>
<td></td>
</tr>
</tbody>
</table>

Brown’s matrix is not without problems as the two dimensions of speaker specificity and hearer specificity cannot adequately account for all article usages. To illustrate with the following examples:

63. a. Joan wants to present the prize to the winner—but he doesn’t want to receive it from her.

b. Joan wants to present the prize to the winner—so she’ll have to wait around till the race finishes.

(C. Lyons, 1999, p. 167, ex. 19)

The speaker refers to a particular person in sentence 63a, but refers to any one of the class that satisfies the notion of winner in 63b, that is, a [+speaker specific] context in the former
and a [-speaker specific] context in the latter. Brown’s matrix, however, cannot account for sentence 63b, as it gives no place to the use of the definite article in a [-speaker specific] context.

Also, the matrix cannot reconcile the use of generic a and generic the. According to Brown’s categorization, generic a and generic the should both fall into the quadrant of [-speaker specific, -listener specific] in Table 2, but the lower right quadrant only licenses the use of a, which once again undermines the explanatory power of this semantic categorization. This problem was also pointed out by Maratsos (1976) who adopted Brown’s matrix while admitting that the use of articles in generic sentences could not be incorporated into the matrix.

Last but not least, the top right [-speaker specific, +listener specific] context is controversial. The context does not seem to be compatible with Brown’s own definition of specificity. Taking Brown’s own example you once wrote an article on superstition, the speaker can be understood to refer to some unique article rather than any article of the category when saying this sentence, even though he may not know as many details as the listener who wrote the article. The examples Brown gave do not cover this context, casting doubt on the legitimacy of such a context. However, Maratsos (1976), when employing Brown’s matrix, regarded this problematic context as a non-central case for their study.

By and large, the matrix was an attempt to reflect Brown’s argument that ‘it is the speaker’s conception of speaker and listener that governs definite and nondefinite reference’ (p. 341), but the dimension of listener specificity may not be the best feature to describe article semantics. The use of the definite article is more related to whether the listener can locate the referent in the shared knowledge between the speaker and the listener than to whether the listener can conceive of some particular instance of the class denoted by the referent. As shown in sentence 63b, the underlined referent is not known to either the speaker or the listener, yet the listener can uniquely locate the referent as an entity in the class of ‘winners’ without having to have a particular entity in mind.

Bickerton’s (1981) semantic space for English articles differs from Brown’s matrix in that it replaces the notion of ‘listener specificity’ with ‘presupposedness’ and therefore better characterizes the semantic functions of English articles (see Figure 1).
Bickerton defined ‘presupposed’ (represented as ‘+P’ in the semantic space) as ‘information presumed shared by speaker and listener’ (p. 248) but gave no precise definition of ‘specificity’, implying the conventional view of the concept as the speaker referring to a particular referent rather than an arbitrary member of the class.

It should be noted that Bickerton’s semantic space is incomplete as it misses out the use of the zero article for the ‘indefinite’ category in the upper right square. Huebner (1983) adopted Bickerton’s model and remedied this oversight. He renamed the key concepts but did not alter their essence.

Huebner’s semantic wheel (Figure 2) represented the semantic distinction for noun phrase reference via two binary features, [+Specific Referent] (hereafter [+SR]) and [+Assumed Hearer’s Knowledge] (hereafter [+HK]). The [+HK] feature, indicating whether the referent is assumed known or unknown to the hearer, is the same as Bickerton’s [+Presupposed] feature. But Huebner did not elaborate on what constitutes a specific referent.

<table>
<thead>
<tr>
<th>+P</th>
<th>-P</th>
</tr>
</thead>
<tbody>
<tr>
<td>+S</td>
<td>+S</td>
</tr>
<tr>
<td>-S</td>
<td>+S</td>
</tr>
<tr>
<td>+P</td>
<td>-S</td>
</tr>
<tr>
<td>-P</td>
<td>-S</td>
</tr>
</tbody>
</table>

**Figure 1 Bickerton’s semantic space for English articles**
The following is an illustration of the four quadrants in the semantic wheel (as shown in Figure 2) and the uses in each quadrant listed by Huebner (p. 133). I will use the noun lion to illustrate the use of articles in each semantic context.

1. [-SR, +HK]: a, the, Ø

Quadrant 1 refers to nouns in a generic sense. They can be marked with all the three articles, i.e. the definite article, the indefinite article and the zero article. For example:

64. A lion is a beautiful animal.
65. Lions are beautiful animals.
66. The lion is a beautiful animal.

2. [+SR, +HK]: the

Quadrant 2 refers to specific definite nouns, which can only be marked with the. Possible NPs in this quadrant can be:

a. A unique referent or conventionally assumed unique referent;

67. A Canadian zoo boasts of owning the largest lion in the world.

b. A referent physically present;

68. ‘Beware of the lion!’

c. A referent previously mentioned in the discourse;

69. He saw a lion in the shade of a tree and he went over to the lion.

d. A specific referent assumed known to the hearer.

70. Did you recall the lion we saw on our safari in Kenya?

3. [+SR, -HK]: a, Ø

Quadrant 3 refers to specific indefinite nouns, which are marked with a and the zero article. This quadrant is divided into two according to the sub-context:

a. First mention of a NP that is [+SR] in a discourse and assumed not known to the hearer;
71. I encountered a lion when driving through a dense jungle.

72. I dreamed of two ferocious lions coming towards me when I was cooking near my camp.

b. First mention of a NP that is [+SR] following existential have and assumed not known to the hearer.

73. A South African woman has a lion as a pet.

4. [-SR, -HK]: a, Ø

Quadrant 4 refers to nonspecific indefinite nouns, which are marked with the same articles as specific indefinite nouns. Huebner listed three kinds of non-referring NPs under this category:

a. Equative NPs;

74. Simba is a lion.

b. NPs in the scope of negation;

75. I don’t see a lion.

c. NPs in the scope of questions, irrealis mode.

76. Have you ever seen silver lions?

Bickerton’s and Huebner’s semantic distinctions for articles have been utilized by a large number of studies on article acquisition, fueling researchers’ interest in discovering what contexts pose the most difficulties for learners. Studies that employ Bickerton’s or Huebner’s model include Cziko (1986), Parrish (1987), Tarone and Parrish (1988), Thomas (1989), and Butler (2002), among others. The semantic wheel, together with its assumed definition of specificity, was used unquestioningly until Ionin (2003) and Ionin et al. (2004) re-investigated the concept and put forward a definition on which the Article Choice Parameter is based (to be introduced shortly). The binary distinction in terms of [+/-SR] and [+/-HK] and the specified sub-contexts in each quadrant have provided us with a rough-and-ready guide to examining NP environments but they are not without problems (which will be discussed later in Section 2.5.5).
2.5.2 Longitudinal studies of indefinite article

There are relatively few longitudinal studies on article acquisition by L2 learners, despite the fact that they are more revealing about learners’ interlanguage development than cross-sectional studies. Three longitudinal studies, Hakuta (1976), Huebner (1983), and Parrish (1987), will be discussed here at some length, not only because their findings are among the earliest discoveries in this field, but also because of the their innovations in methods of analysis which have been used repeatedly in ensuing studies. Following the review of longitudinal studies, findings from cross-sectional studies, in particular, studies of the acquisition of the indefinite article by Chinese EFL learners will be introduced.

Hakuta (1976) reported a longitudinal, naturalistic study of the L2 acquisition of English by a five-year old Japanese girl Uguisu. Observation started when the girl was age 5.4, five months after her initial exposure to English, and spanned a period of 60 weeks. Hakuta analyzed various grammatical morphemes from the spontaneous speech of the girl recorded every two weeks. Articles were a morpheme of particular interest to him, as the girl’s L1 language Japanese is article-less and does not distinguish between specificity and non-specificity by obligatory linguistic devices. He found that many of Uguisu’s errors indicate a failure to make the specific/non-specific distinction (as defined in Brown’s (1973) matrix) and a violation of the grammatical rule that *a* is generally used with count nouns. The large number of commission errors suggests that a learner may first notice the form of articles before learning their function. Hakuta attributed the girl’s late acquisition of the specific/non-specific distinction, unlike L1 acquisition where it is acquired early on (for example, as early as three years old for Brown’s (1973) three young participants), to the influence of her first language which does not mark this distinction. Apart from this, Hakuta observed that Uguisu performed better on *the* than on *a*.

Huebner (1983) conducted a longitudinal study of an adult Hmong speaker acquiring English in a natural setting. The participant, a young man named Ge in his early twenties, had no formal English training before he became part of the study. Huebner collected one-hour long speech samples from him roughly every three weeks for one year. The study described the participant’s changing use of the article *da* (a non-standard form of English *the*) and two other linguistic devices. Huebner started the trend of analyzing article usage in terms of NP environments categorized by the semantic wheel (introduced above). Ge’s shifts in the use of *da* were classified into six major stages characterized by NP environments (p. 146):
Stage 1: [+SR, +HK, -Topic]

Stage 2: all NP types

Stage 3: all NP types, except [-SR, -HK]

Stage 4: [+HK]

Stage 5: [+SR, -Existential]

Stage 6: [+HK]

In the first stage, Ge used *da* with NPs that are [+SR, +HK], but not in the topic position of the sentence (i.e. [-Topic]). Huebner reasoned that the learner might think that if a NP is a topic, it is at the same time [+HK] to the hearer, so there is no need to mark it twice, hence the omission of *da* in topic positions. Six weeks after the initial recording, Ge extended the use of *da* into all the four NP environments (stage 2). During the period between the thirteenth and the eighteenth week, the use of *da* with [-SR, -HK] NPs dropped sharply (stage 3). This de-association of *da* with [-SR, -HK] is deemed as a kind of ‘unmarking’ of NPs that are furthest from the obligatory context for the definite article (i.e. [+SR, +HK]). By the twenty-sixth week (stage 4), Ge only used *da* with [+HK] NPs, including generics, which approximates to the use of the definite article in standard English. Stage 5 (from the thirty-third week onward), however, is a kind of regression away from the target-like use. Ge marked generics with a new form *evrii* rather than with *da*. During the same period, he reverted to the use of *da* with [+SR, -HK] NPs, except those following existential *have*. Stage 6 is a return to the target-like use almost achieved at the time of stage 4, but the regression in stage 5 is beyond explanation. The above stages can also inform us of the occasions where the learner overused *da* (the definite article) in place of the indefinite article. Errors of commission occurred in stage 2 (with [+SR, -HK] and [-SR, -HK] NPs), stage 3 (with [+SR, -HK] NPs) and stage 5 (with some of the [+SR, -HK] NPs). As can be seen, the [+SR, -HK] context appeared to be the most difficult one for the learner, as commission persisted the longest in this context.

Parrish’s (1987) longitudinal study investigated the acquisition of English articles by an ESL adult learner. She used three different methods to analyze data, namely, Huebner’s (1983) system based on his semantic wheel, a modified version of Huebner’s system, and a method based on suppliance of morphemes in obligatory contexts. She argued that the learner’s
interlanguage is not random but systematic and the systematicity is related to the semantic
types of NPs, the lexical categories of NPs and the learner’s attempts to keep linguistic
related forms consistent. The participant of Parrish’s study was a 19-year-old Japanese
woman, named Mari, who had received six years of English instruction in Japan before
coming to America for a language program. Speech data in 20- to 30-minute sessions was
collected every ten days over a period of four months. Each time the participant was asked to
tell two stories on the same topic, one about America, the other about Japan, and to describe a
place (her city or the campus). The same topics were meant to give the participant equal
opportunity to produce various contexts for articles on each occasion.

Parrish first categorized the NPs found in Mari’s production on the basis of Huebner’s (1983)
semantic wheel. She observed that the was absent in the [-SR, -HK] context and was rarely
used in the [-SR, +HK] context. Mari used the ungrammatically in [+SR, -HK] but did not
use it at all in [-SR, -HK], which led to the speculation that Mari may have hypothesized that
the can only be used in the [+SR] contexts. This kind of overuse of the with [+SR, -HK] NPs
is reminiscent of Ge’s commission error in stages 2, 3 and more particularly in stage 5.
Regarding the indefinite article, Mari did not use a in the [-SR, +HK] and [+SR, +HK]
contexts, which suggests that she might have identified the use of a with [-HK] NPs only.

Huebner’s system only counts the occurrence of articles with different types of NPs but
cannot show the rate of accuracy within each type, which prompted Parrish to revise
Huebner’s system and establish a type matrix that tallies the correct and incorrect occurrences
of articles in each NP type. The accuracy rate of a certain article is calculated by dividing the
number of correct occurrences of the article by the total number of occurrences. This revised
system, again, is not perfect, as it examines the number of correct use in proportion to the
total number supplied rather than the number of occasions where an article should be used.
To remedy the inadequacy, Parrish turned to the third method of measuring the accuracy of
an article by dividing the number correctly supplied by the total number of obligatory
contexts for a specific article. The second and third methods of analysis yielded different
accuracy rates for the indefinite article—for example, 100 percent and 19 percent
respectively at Time 11 (i.e. 110 days after the onset of data collection), the second of which
seemed to provide a more revealing picture of the learner’s interlanguage development.
Besides, results from the third method indicated that the was acquired more quickly than a,
which echoes the performance of Hakuta’s (1976) learner, Uguisu.
Parrish’s study has two other findings worth pondering over. She found that Mari consistently marked some nouns incorrectly. For example, the noun *moon* in the [+SR, +HK] context occurred altogether five times but the learner used the zero article with *moon* four times and the definite article only once, which indicated that the learner’s use of articles in some cases was lexically determined rather than governed by NP types. Parrish also analyzed proper nouns, idioms and commonly used expressions that were excluded in Huebner’s study. She observed that the learner was trying to keep her use of articles in these chunks consistent with those in non-chunk expressions. Parrish’s findings stimulated me to think about how to treat chunks when analyzing learner’s use of articles in different NP types. The learner may form competing hypotheses of her own about article usage. She may be inclined to link a particular article with a certain NP due to their high combinatorial frequency but at the same time she may want to adhere to the rules she learned about article usage. It is hard to account for the errors in chunks and, what is more, idioms and many formulaic expressions are unanalyzable; therefore, I set aside chunks and only provided a detailed coding for non-chunk NPs in the corpus study.

These longitudinal studies, despite their scarcity, have captured the major difficulties learners face in the acquisition of the indefinite article. As we will see, problems such as the overuse of *the* in the [+SR, -HK] context, failure to make the specific-non-specific distinction and violation of noun countability rules are also reflected in cross-sectional studies. On top of these problems, cross-sectional studies covering a wider range of participants with mixed native languages and different proficiency levels have drawn attention to other problems related to learners’ article usage as well as to study design.

### 2.5.3 Cross-sectional studies of indefinite article

Tarone (1985) and Tarone and Parrish (1988) explored the variable effect of different tasks on article usage in learners’ interlanguage, alerting us to task-related factors on the use of articles. In Tarone’s (1985) study, twenty ESL learners (ten native speakers of Japanese and ten native speakers of Arabic) at an American university were asked to perform three tasks: a written grammaticality judgment task, an oral interview with a native English speaker and an oral narration task. The researcher hypothesized that the written task required the most attention to linguistic form, the narration task required the least attention and the interview fell in between. Learners were expected to show the highest level of accuracy in the written task and the lowest in narration. The results, however, were contrary to the researcher’s
hypothesis: the learners turned out to be least accurate with articles in the written task and far more accurate in narration. Interestingly, however, some other grammatical forms (such as third-person singular) improved with increased attention to form. The study suggests that attention to form alone cannot fully explain the variation in interlanguage. Other task-related factors may be at play.

The previous study prompted Tarone and Parrish (1988) to re-analyze the same data from a new perspective. Employing Huebner’s (1983) and Parrish’s (1987) systems, the new study coded NPs in terms of the semantic wheel and compared distributions of the four NP types across the three tasks. The study found that firstly, different tasks elicited different proportions of NP types. The grammaticality judgment test only contained Type 2 [+SR, +HK] and Type 3 [+SR, -HK] NPs. Thus it was not possible to test learners’ usage of articles in the other two contexts, reflecting an inherent flaw in test design. The narration task produced mostly Type 2 NPs, followed by Type 3 NPs in frequency while in the interview task Types 1, 2, 3 NPs were all common. The distribution of NP types may be related to the communicative function of tasks. The narration task in the study required more ‘first-mention’ and ‘second-mention’ of NPs, hence a greater proportion of Type 2 and Type 3 NPs.

Secondly, the accuracy rate of article usage with Type 3 [+SR, -HK] NPs was significantly lower than with Type 1 [-SR, +HK] and Type 2 [+SR, +HK] NPs. This finding is consistent with other studies indicating that the [+SR, -HK] context is the most problematic.

Thirdly, the accuracy with Type 2 NPs was lowest in the written task and highest in the narration task, which was attributed to the different communicative demands of tasks and the cohesiveness of the discourse elicited by the tasks. The researchers argued that, among the three tasks, the narrative posed the greatest communicative pressure to convey information clearly (e.g. to correctly mark subsequent NPs so that the hearer could keep track of the referents), hence the increased accuracy with Type 2 NPs in this task. They also commented that the grammaticality judgment task could only provide sentence-level contexts whereas the two oral tasks elicited extended discourse, which was more conducive to the correct use of articles. The above two studies alerted us to the effect of tasks on learners’ use of articles, which clearly needs to be considered when designing a language test or collecting data to analyze learners’ article usage.
Thomas (1989) studied the use of articles by 30 adult ESL learners aged 24-46 years old. The learners of nine different first languages were grouped into three proficiency levels. Their spontaneous speech was elicited by a photo description task and the noun phrases produced were classified according to NP types as defined in Huebner (1983). Findings from the study were in line with the other studies: 1). The accuracy rate of *a* was significantly lower than *the* according to obligatory occasion analysis. 2). Learners of article-less first languages omitted articles more frequently than learners whose first languages had articles, which may be due to negative L1 transfer. 3). Learners in all three proficiency levels overgeneralized the use of *the* in the first-mention [+SR, -HK] context but not or rarely in the [-SR, -HK] context, indicating that they associated *the* with [+SR] in early acquisition.

Earlier studies also found that L1 learners tend to overuse *the* with first-mention [+SR, -HK] NPs. Maratsos (1976), like others, attributed this phenomenon to children’s ego-centricity. Children tend to impose what is known to them on the hearer as a result of failure to consider the hearer’s state of knowledge. However, Thomas argued against this explanation as it is obviously not applicable to adult L2 learners who commit the same commission errors. She sided with Bickerton (1981), who postulated that language learners have an innate sensitivity to the specific/non-specific distinction of nouns as claimed by the Language Bioprogram Hypothesis. It should be noted that whether learners have an inborn sensitivity to such a semantic distinction is really another issue. Even if learners have such a sensitivity, which means they should be able to easily distinguish between specific and non-specific contexts, it cannot effectively account for learners’ overuse of *the* with [+SR, -HK] NPs.

Young (1996) investigated the use of articles in the spoken English interlanguage of six young adults, three native speakers of Czech and three native speakers of Slovak. He showed how the variation in article usage was related to four factors: 1) specific/non-specific reference, i.e. [+SR/-SR]; 2) shared/unshared discourse context, i.e. [+HK/-HK]; 3) countability and number of the nouns, and 4) L1 transfer. Results from a VARBRUL analysis showed that the use of the indefinite article is not common in learners of both low proficiency and high proficiency levels due to the large number of omission errors. For those cases of suppliance, the [-HK] context had a much larger effect on the use of *a* than the [+HK] context and the effect increased with proficiency. Referential indefinite contexts (i.e. [+SR, -HK]) and generic contexts (i.e. [-SR, +HK]), out of the other semantic contexts as defined in Huebner (1985), were found to be associated with the use of the indefinite article. The factor of countability/number also had an effect on the indefinite article. Singular number was
strongly associated with the indefinite article while noncount nouns and especially plural nouns had very small weightings. The association of the indefinite article with NP types and countability/number in Young’s study revealed that the learners were mostly conforming to the target-like form-meaning mapping of *a* in their interlanguage, except that they omitted it a lot. NP types showed no effect on the use of the definite article in lower-level learners, which suggests that they had not yet acquired rules to map form onto meaning. Higher-level learners encoded definiteness most often with specific reference and unique reference in the [+HK] context, but also overused *the* with first-mention and equational [-SR] NPs.

Unlike most of these studies that investigated article usage as implicit knowledge, Butler (2002) probed into learners’ explicit knowledge of articles. In his study, 80 Japanese college students, divided into three proficiency levels, were interviewed as to the reasons for their article choices immediately after they completed a fill-in-the-article test. Learners’ errors were categorized into four groups: a. problems with referentiality; b. misdetection of countability; c. non-generalizable or idiosyncratic hypotheses about article use, and d. other reasons. The first two major reasons will be introduced here. First and foremost, problems with referentiality caused the largest proportion of non-target-like article choices. Low proficiency learners often considered the [+/−SR] feature only, ignoring the [+/−HK] feature, which lead to an overuse of the definite article. Specifically, their understanding of contexts was flawed either because they utilized extra-linguistic knowledge into the reading of test items or because they failed to distinguish given and new information. The problem with the identification of [+/−HK] contexts remained even for the advanced learners. Learners’ identification of the [+/−SR] contexts was less problematic and the misdetection rate declined as the proficiency level increased. The meta-linguistic knowledge the learners reported indicated that they initially linked the use of the definite article with the [+SR] feature, which supports earlier findings.

The study also found that identifying noun countability posed difficulty to learners of all proficiency levels. Lower-level learners tended to think that countability was a static notion; that is, they were unaware of the fact that most nouns can be used in either a countable or noncountable way in different contexts. The higher-level learners were more sensitive to the dynamic nature of the contexts where NPs occur, not only in their evaluation of both [+/−HK] and [+/−SR] but also in their non-static perception of countability. In contrast, lower-level learners demonstrated ignorance of the [+/−HK] feature and also adopted a static view of countability.
There is another phenomenon worthy of attention in this study. It reported that lower-level learners tended to rely heavily on syntactic or structural constructions rather than semantic and pragmatic environments when choosing articles. For example, some learners took the existence of an adjective or a *that*-clause modifying a noun as a cue to using the definite article. Different learners were found to have different word-article collocational hypotheses. To further explore the structural effects on article usage, I decided to code syntactic features in addition to grammatical and semantic-pragmatic features in the corpus study. This study offers us direct evidence of learners’ metalinguistic knowledge about article usage but it is not clear whether or to what extent the learners consulted their own metalinguistic knowledge when using articles and note should be taken of the fact that learners are not always able to explain their intuitive choice of articles. Studies of a more experimental nature may be needed to explore the effect of semantic contexts on article usage.

### 2.5.4 Chinese L2 learners’ acquisition of the indefinite article

The current research is concerned with the use of the indefinite article by Chinese learners of English as a foreign language. The corpus study draws on data from the Chinese Learner English Corpus (CLEC), a major annotated corpus of compositions by Chinese L2 learners. Studies of the same target learners or using the same corpus are of particular pertinence to the current research. In this section, I will introduce some relevant findings for article acquisition by Chinese L2 learners.

Robertson (2000) investigated the variable use of the definite and indefinite articles by 18 Mandarin-speaking ESL learners, all of whom were postgraduate students at a British university. The participants were asked to collaborate in pairs on a drawing task whereby speech samples rich in referential nouns were elicited. He classified all the NPs according to Hawkins’ (1978) taxonomy of article usage. The indefinite environments in his data where *a* is normally required fall into three categories:

a. Use of NPs in existential predication:

For example, NPs introduced by *there is, there are, have, got* and so on.

b. Use of NPs as objects of transitive verbs or as complements of copulative constructions:

For example, objects of verbs such as *draw* and *put*.

c. Generic use of singular NPs.
Obligatory occasion analysis showed that accuracy in definite contexts (79.7%) was significantly higher than in indefinite contexts (72.1%), which is consistent with previous findings that *the* is acquired earlier than *a* (Hakuta, 1976; Parrish, 1987).

The study found that articles were missing in 22% of all the contexts where they should have been supplied. Robertson explained most of the non-supplings in terms of three principles:

1. The syntactic principle of ‘determiner drop’:

Learners tended to omit articles with a NP if it was within the scope of the determiner of a preceding NP.

2. The pragmatic ‘recoverability’ principle:

If the [+/-definite] meaning was recoverable from the context, the NP was not marked to avoid redundancy.

3. The ‘lexical transfer principle’:

Some learners used demonstratives (e.g. *this*) and numeral *one* to mark definiteness and indefiniteness, respectively, in place of articles.

Robertson argued that L1 influence underlay the three principles. The Chinese language is a ‘discourse-oriented’ language which does not require overt grammatical markers if the information is recoverable from the context, whereas English is a ‘syntax-oriented’ language where certain grammatical morphemes are obligatory regardless of the context. Learners are undergoing a re-mapping process that links semantic-pragmatic features with syntactic and lexical features of the target language, the difficulty of which explains why learners’ interlanguage shows unsystematic variation, i.e. optionality rather than consistency in the use of articles with NPs in the same contexts. Robertson’s three principles, however, cannot account for all the omission errors as there were 206 omissions in his study that could not be explained. Factors other than L1 influence may explain these omissions.

Yan (2003) searched for all the article errors across six proficiency levels in the CLEC corpus. The study found that the number of article errors decreased as learners’ proficiency level increased but some kinds of errors, such as article omission, occurred more frequently among higher-level learners, the reason for which is unclear. The researcher attributed the overall omission error rate to L1 transfer as Chinese is an article-less language and it takes
time for learners to develop the habit of using articles. Cai and Wu (2006) also based their study on data from CLEC and, in addition, to a fill-in-the-article cloze test. They randomly selected 30 exam compositions written by non-English major first- and second-year students from the CLEC. Their participants for the cloze test were non-English major second-year students from a Chinese university. Consistent with previous findings, article omission was found to be a problem for these Chinese learners. The learners were found to overuse the with both [+SR, -HK] and [-SR, -HK] NPs in the cloze test but rarely so in compositions, a result that differs from Thomas’ (1989), who reported an overuse of the in [+SR, -HK] but not in [-SR, -HK].

Zhu (2009) looked into the use of articles by Chinese English major students. A written test, composed of blank-filling, error correction, and cloze items, was used to test 48 first-year and 48 third-year English major students from a Chinese university. They were more accurate in the use of the indefinite article than the definite article and zero article. But learners of both proficiency levels made mistakes on some identical test items. For example, for the sentence Yet I had a suspicion that he wasn’t speaking the truth..., quite a few learners thought the should be used in place of a when there is a that-clause or of-clause modifying the noun. The same kind of learner hypothesis was discussed by Butler (2002). Results from this study, however, should be viewed with reservation, as the number of test items, totaling 25, was not sufficient to cover all types of article usages.

Zhou (2008) carried out a relatively large scale survey involving 262 adult Chinese learners divided into four levels of English proficiency. The instrument was a grammaticality judgment test consisting of 132 questions designed and categorized according to Huebner’s semantic wheel. The study found that learners across proficiency levels had the lowest accuracy rate in their judgment of generic sentences such as A tiger is beautiful. Learners were more comfortable with the omission of a in this type of generic. To investigate this phenomenon, Zhou conducted a follow-up study that included an interview probing learners’ judgments in the test. The participants reported understanding the English indefinite article as equivalent to the numeral ‘one’ in Chinese. In Chinese, numeral ‘one’ only marks indefiniteness and is generally not used in the subject position. Due to this, learners could not reconcile their knowledge of a with the generic interpretation of the sentence, thus judging ‘generic a’ as incongruous. Their acceptance of zero article was also attributed to negative transfer from their first language, which lacks the article system. Context-wise, learners’ acceptance of bare singular nouns in generic [-SR, +HK] (as in Computer is important in
modern life) was higher than that of bare singular nouns in [-SR, -HK] (as in John is writer). Zhou explained this phenomenon in terms of input frequency. Generic NPs are less common than NPs in the [-SR, -HK] context, which accordingly leads to a lack of positive evidence needed to help learners to revise their wrong hypotheses on article usage.

Zhou (2008) also hypothesized that learners would perform better with [+specific, +definite] and [-specific, -definite] NPs than with [+specific, -definite] NPs. Data from a forced elicitation task designed to investigate the effects of different context types lent support to the hypothesis. He ascribed the difficulty of the [+specific, -definite] context to the complexity of article semantics. First of all, he argued against the existence of the [-specific, +definite] context, pointing out that the [-specific, +definite] context designed in Ionin et al.’s (2004) study was in fact [+specific, +definite]. The absence of [-specific, +definite] thus reduces the number of semantic combinations from four to three, i.e. [+specific, +definite], [+specific, -definite] and [-specific, -definite]. Among these three contexts, [+specific, -definite] is the most complex, as it not only contrasts with [+specific, +definite] in definiteness but also with [-specific, -definite] in specificity, whereas [+specific, +definite] only needs to be distinguished from [+specific, -definite] and [-specific, -definite] also only needs to be distinguished from [+specific, -definite]. Thanks to the absent quadrant of [-specific, +definite], we only need to make one layer of distinction to arrive at [+specific, +definite] or [-specific, -definite], but we have to make two layers of distinction to reach [+specific, -definite] as shown in Figure 3 (Zhou, 2008, p. 106)

<table>
<thead>
<tr>
<th></th>
<th>+definite</th>
<th>- definite</th>
</tr>
</thead>
<tbody>
<tr>
<td>+specific</td>
<td>1. the</td>
<td>2. a, Ø</td>
</tr>
<tr>
<td>- specific</td>
<td>3. the ( ?)</td>
<td>4. a, Ø</td>
</tr>
</tbody>
</table>

**Figure 3 Article semantics in Zhou (2008)**

Zhou’s approach to article semantics is too general to be of much use. It is not very informative to claim that one position needs you to do two jobs and the other two positions each need you to do just one job, and thus claim that the former one is more difficult than the latter two. We are more interested in knowing how learners fail to make the definite or specific distinction, which needs further research. In particular, Zhou did not elaborate on why the [-specific, +definite] context does not exist. I have doubts about this claim and will discuss it later.
2.5.5 Summary of reviewed studies

I will summarize the major findings about the acquisition of the indefinite article by L2 learners. See also Appendix A for summaries of all the studies reviewed above with a general focus and those studies with a focus on Chinese L2 learners respectively.

1. Generally speaking, learners perform better on *the* than on *a*, although some studies indicate otherwise.

2. The [+SR, -HK] context is the most problematic context among the four contexts for L2 learners. The semantic complexity of the [+SR, -HK] context is suggested by some researchers to be the cause.

3. Learners tend to overuse *the* in place of *a* in the [+SR, -HK] context (also known as [+specific, -definite]), but rarely in the [-SR, -HK] context (note that some studies, however, also found overuse of *the* in [-SR, -HK]). It is hypothesized that learners may associate *the* with the [+SR] feature.

4. Tasks have an effect on the distribution of noun environments and the accuracy of article usage with different types of nouns.

5. Article omission is more of a problem for learners of article-less first languages than for those whose first languages have articles. L1 transfer is the most commonly cited cause for omission errors.

6. For Chinese L2 learners, article omission is a problem across proficiency levels and does not seem to improve in advanced learners.

7. Learners’ choice of articles is influenced by syntactic constructions as shown in both commission and omission errors: learners may overuse *the* with nouns having certain adjective modifiers or clause modifiers; learners tend to omit articles with a NP if it is within the scope of the determiner of a preceding NP.

8. Learners’ choice of articles is influenced by pragmatic contexts. They may not mark the [+/-definite] feature if the meaning is recoverable from the context.

9. Noun countability is an issue for L2 learners, especially for lower-level learners who hold a non-static rather than static view of countability.
10. L1 Chinese learners tend to understand the indefinite article in terms of the numeral ‘one’ in Chinese and even overuse *one* in place of *a* in production tasks.

11. ‘Generic *a*’ in the subject position of a sentence is not well accepted by Chinese learners. Learners’ omission of *a* in this type of sentences may be due to low input frequency of generics and L1 transfer.

Despite the fact that considerable strides have been made in the study of article acquisition, we are still left with gaps to fill. The majority of studies are descriptive rather than explanatory, thus we know more about where learners use the articles incorrectly than about how and why such errors occur, but see Goad and White (2004); Ionin et al. (2004); Lardiere (2005); Trenkic (2009) for their explanations of article errors. Researchers have hypothesized that learners’ overuse of *the* is due to their association of *the* with the [+SR] feature. Only a few experimental studies have addressed this hypothesis. Some of these studies will be introduced below, but we will see later that controversy still remains. Studies of the acquisition of the indefinite article by Chinese L2 learners have been restricted to looking at article use in the four different types of noun environments as defined by Huebner (1983). The corpus study reported in this thesis used a coding system with multiple layers to annotate learners’ use of the indefinite article in greater detail as well as their commission and omission errors. The elicitation study explored the potential relation between referential features (e.g. specificity and genericity) and learners’ use of the indefinite article. The following section will discuss how the concepts of specificity and genericity have been operationalized in SLA studies of article acquisition and the problems with such operationalizations.

2.5.6 Controversy about the operationalization of article semantics in SLA studies

2.5.6.1 Operationalization of ‘specificity’ in studies on article acquisition

Definiteness and specificity are two basic constructs on which descriptive and explanatory studies of article acquisition build their theories. The debate on specificity is especially heated in explanatory studies that aim to establish a correlation between a certain feature in article semantics and article misuse. The different results from different studies can, in part, be attributed to how they operationalized specificity. Problems in the definition of specificity and its operationalization in SLA studies still remain.
Definitions of specificity in studies of article use can be roughly categorized into two types. The first and also the most frequent definition of specificity is in terms of the speaker conceiving of a particular referent as opposed to an arbitrary member of a class. The second is specificity as the speaker’s intent to refer, adopted by Ionin (2003), Ionin et al. (2004) and Trenkic (2008). To borrow Trenkic’s (2008) terms, the first type of specificity is called ‘speaker specificity’, while the second type is ‘discourse specificity’. The second type differs from the first type in that it places emphasis on the speaker’s intention to refer, recognizing the situation that a speaker can have a particular entity in mind but at the same time does not intend to refer to the entity. The status of discourse specificity can only be pragmatically inferred in English, but it can be marked in some other languages such as Samoan (see example 78).

The three semantic frameworks (Bickerton, 1981; R. Brown, 1973; Huebner, 1983) introduced in an earlier section all define ‘specificity’ as ‘speaker specificity’. And all the studies reviewed up to this point employed their semantic frameworks if they used any. To avoid repetition, this section will skip the review of studies of the first type, and proceed directly to the studies of the second type, that is, those focusing on ‘discourse specificity’.

Ionin et al. (2004) proposed that articles in two-article languages cross-linguistically can encode either one of the two features, i.e. [±definite] and [±specific]. English is a language that encodes the [±definite] feature, while Samoan is a language that encodes the [±specific] feature. English distinguishes the use of the definite article and the indefinite article on the basis of [±definite], regardless of [±specific]. In other words, the choice of English articles depends on [±definite]. As illustrated in Figure 4 (Ionin et al., 2004, p. 13), the [+definite] and [-definite] features cut across [+specific] and [-specific], indicating that the value of [±specific] does not affect article choice.

<table>
<thead>
<tr>
<th></th>
<th>+definite</th>
<th>-definite</th>
</tr>
</thead>
<tbody>
<tr>
<td>+specific</td>
<td>the</td>
<td>a</td>
</tr>
<tr>
<td>-specific</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 4 Article grouping by definiteness in English
On the other hand, in Samoan the specific article *le* is used to refer to one particular entity regardless of whether it is definite or not, while the nonspecific article *se* is used to refer to an arbitrary member of the category denoted by the noun phrase, regardless of whether the conditions on definiteness have been met. Thus the feature of [+definiteness] is irrelevant for the choice of articles in Samoan, as shown in Figure 5 (Ionin et al., 2004, p. 13).

Observations of articles in English and Samoan led Ionin et al. to propose the Article Choice Parameter (ACP) (2004, p. 12):

A language that has two articles distinguishes them as follows:

The Definiteness Setting: Articles are distinguished on the basis of definiteness.

The Specificity Setting: Articles are distinguished on the basis of specificity.

After reviewing previous studies on L2 learners’ access to non-L1/non-L2 parameter-settings and evidence of learners’ performance that indicates optional adherence to parameter-settings, Ionin et al. (2004) put forward the Fluctuation Hypothesis (FH) (p. 16):

The Fluctuation Hypothesis

a. L2 learners have full access to UG principles and parameter-settings.

b. L2 learners fluctuate between different parameter-settings until the input leads them to set the parameter to the appropriate value.

Combining the ACP and the FH, Ionin et al. (2004) formulated the FH for L2 English article choice (p. 17):

The FH for L2 English article choice:

a. L2 learners have full UG access to the two settings of the Article Choice Parameter.
b. L2 learners fluctuate between the two settings of the Article Choice Parameter until the input leads them to set this parameter to the appropriate value.

According to the predictions of the FH (shown in Table 3), L2 learners from article-less languages are expected to fluctuate between the definiteness setting and the specificity setting of the ACP as they should have no *a priori* preference for one setting over another in the absence of L1 transfer.

**Table 3 Predictions for article choice in L2 English (Ionin et al., 2004, p. 19)**

<table>
<thead>
<tr>
<th>Context</th>
<th>[+definite] (target: THE)</th>
<th>[-definite] (target: A)</th>
</tr>
</thead>
<tbody>
<tr>
<td>[+specific]</td>
<td>correct use of <em>the</em></td>
<td>overuse of <em>the</em></td>
</tr>
<tr>
<td>[-specific]</td>
<td>overuse of <em>a</em></td>
<td>correct use of <em>a</em></td>
</tr>
</tbody>
</table>

To test the hypothesis, Ionin et al. designed a forced-choice elicitation task requiring participants (adult speakers of article-less languages, Russian and Korean) to choose the correct article in different contexts. Results from this elicitation task and a production task showed that L2 learners overused *the* with indefinites and overused *a* with definites, which, according to Ionin et al., can be traced back to the same source: the association of *the* with the [+specific] feature and the association of *a* with the [-specific] feature, which is a mis-setting of the Article Choice Parameter in English. L2 learners’ access to the setting of specificity cannot be accounted for by L2 input as it is a setting not instantiated in the English language (but is in other languages such as Samoan) or by L1 transfer due to the absence of articles in learners’ L1. Ionin et al. thus argued that L2 learners’ access to the specificity setting lent support to learners’ access to the universal semantic distinctions of definiteness and specificity.

Ionin et al.’s ACP and FH has given rise to a number of subsequent studies that tried to test the claims of the hypothesis—for example, R. Hawkins et al. (2006), Snape, Leung, and Ting (2006), Ionin, Zubizarreta, and Maldonado (2008), Zdorenko and Paradis (2008), Garcia Mayo (2009), Sarko (2009), and Tryzna (2009). One of these studies challenged the FH. Trenkic (2008) called into question Ionin et al.’s definition of specificity. According to Ionin et al. (2004), if a Determiner Phrase (DP) of the form [D NP] is [+specific] ‘then the speaker intends to refer to a unique individual in the set denoted by the NP and considers this individual to possess some noteworthy property’ (Ionin et al., 2004, p. 65). This definition can be broken down into two conditions: one is the speaker’s intent to refer, and the other is a
noteworthy property owned by the referent. The definition is illustrated in the following examples borrowed from C. Lyons (1999, p. 176):

77. a. Peter intends to marry a merchant banker—even though he doesn’t get on at all with her.

   b. Peter intends to marry a merchant banker—though he hasn’t met one yet.

Sentence 77a is considered to be [+specific] by Ionin et al.’s definition. The speaker intends to refer to a particular person, the one Peter intends to marry, and this person possesses a noteworthy property which is he doesn’t get on at all with her. In contrast, sentence 77b cannot satisfy the conditions for specificity as the speaker cannot conceive of any particular merchant banker and the absence of such a particular referent at the same time makes the noteworthy property condition impossible.

As mentioned above, Ionin et al.’s definition of specificity is a kind of ‘discourse specificity’ as opposed to ‘speaker specificity’. The latter simply builds on whether the speaker has a particular referent in mind, while the former depends on the speaker’s intent to refer, which allows for the kind of situation where the speaker does not intend to refer even if he/she has sufficient details about the referent. Languages like Samoan can grammatically signal this kind of situation with the use of articles but English lacks overt morphological means for expressing it. Here is an example in Samoan (Mosel and Hovdhaugen, as cited in Ionin et al., 2004):

78. Sa fesili mai se tamaitai po=o ai l=o ma tama.

   PAST ask  DIR ART(nsp.sg.) lady Q-PRES who ART=Poss 1. exc.du father

   A lady asked us who our father was.

In sentence 78, the speaker has a personal encounter with the lady and must be referring to a particular person at the moment of utterance. Yet the speaker chooses se, the nonspecific article in Samoan, indicating that he considers the lady not relevant to the topic and has no intention of referring to her. The communicative purpose of the sentence is not who the lady is but the fact that a lady asked the speaker a certain question. This is a typical example from naturalistic data that lends support to the definition of specificity as the speaker’s intent to refer.
With this definition of specificity, Ionin et al. designed a forced-choice elicitation task involving different context types characterized by [+definite] and [+specific]. Here are some items from their task to let us have a brief idea of how these contexts look:

79. [+definite, +specific]

At a bookstore

Chris: Well, I’ve bought everything that I wanted. Are you already to go?

Mike: Almost. Can you please wait a few minutes? I want to talk to (a, the, --) owner of this bookstore—she is my old friend.6

80. [+definite, -specific]

Bill: I’m looking for Erik. Is he home?

Rick: Yes, but he’s on the phone. It’s an important business matter. He is talking to (a, the, --) owner of the company! I don’t know who that person is—but I know that this conversation is important to Erik.

81. [-definite, +specific]

In a restaurant

Waiter: Are you ready to order, Sir? Or are you waiting for someone?

Client: Can you please come back in about twenty minutes? You see, I am waiting. I am planning to eat with (a, the, --) colleague from work. She will be here soon.

82. [-definite, -specific]

At a university

Professor Clark: I’m looking for Professor Anne Peterson.

Secretary: I’m afraid she is busy. She has office hours right now.

Professor Clark: What is she doing?

Secretary: She is meeting with (a, the, --) student, but I don’t know who it is.
Trenkic pointed out two issues with Ionin et al.’s definition and operationalization of specificity. First, she concurred with Ionin et al. on the definition of specificity as the speaker’s intent to refer, but considered the extra condition of ‘noteworthiness’ superfluous as technically it neither adds to nor takes anything away from the original definition. Trenkic argued that a speaker may know a lot of noteworthy properties of the referent but have no intention of referring, as seen in sentence 78. Likewise, a speaker may deny knowing any noteworthy properties of the referent yet the context can still be [+specific], as in the following example:

83. Office gossip

   Gina: …and what about the others?

   Mary: Well, Dave is single, Paul is happily married, and Peter … he is engaged to a/this merchant banker, but none of us knows who she is, or what she’s like.

   (Trenkic, 2008, p. 4, ex. 7)

Trenkic used ‘introductory this’ to test whether the context is specific. ‘Introductory this’, as opposed to ‘deictic this’, is regarded by grammarians as an overt marker of specificity in English. Contexts where ‘introductory this’ can be used are [+specific] but contexts where it cannot be used are not necessarily [-specific] as ‘introductory this’ is highly colloquial and requires a stylistically suitable context. Sentence 83 has established a context that allows the use of ‘introductory this’, so the use of the indefinite article in the same context is considered to be [+specific].

Second, Trenkic pointed out that Ionin et al. operationalized the notion of specificity through the speaker explicitly stating or denying his or her knowledge of the referent (as shown in Table 4). Test items from Ionin et al.’s task, as represented by sentences 79-82, show a clear pattern of equating the status of speaker’s knowledge with specificity. In Ionin et al.’s study, L2 learners’ overuse of a with [-specific] definites and overuse of the with [+specific] indefinites may result from a mis-setting of the Article Choice Parameter, i.e. an ill choice of the specificity setting rather than the definiteness setting, as proposed by Ionin et al., but it may also be attributed to the learners’ choice of articles on the basis of the objective identifiability of the referents. To test which variable affects learners’ choice, Trenkic teased apart the two values, ‘specificity’ (as the speaker’s intent to refer) and ‘explicitly stated knowledge’ (abbreviated as ESK).
Table 4 Semantic contexts in Ionin et al. (2004)

<table>
<thead>
<tr>
<th>Context</th>
<th>Explicitly stated knowledge (ESK)</th>
</tr>
</thead>
<tbody>
<tr>
<td>[+definite, +specific]</td>
<td>+ESK</td>
</tr>
<tr>
<td>[+definite, - specific]</td>
<td>- ESK</td>
</tr>
<tr>
<td>[- definite, +specific]</td>
<td>+ESK</td>
</tr>
<tr>
<td>[- definite, - specific]</td>
<td>- ESK</td>
</tr>
</tbody>
</table>

Table 5 Semantic contexts in Trenkic (2008)

<table>
<thead>
<tr>
<th>Context</th>
<th>Explicitly stated knowledge (ESK)</th>
</tr>
</thead>
<tbody>
<tr>
<td>[+definite, +specific]</td>
<td>+ESK</td>
</tr>
<tr>
<td>[+definite, - specific]</td>
<td>- ESK</td>
</tr>
<tr>
<td>[- definite, +specific]</td>
<td>- ESK</td>
</tr>
<tr>
<td>[- definite, +specific]</td>
<td>+ESK</td>
</tr>
<tr>
<td>[- definite, - specific]</td>
<td>- ESK</td>
</tr>
</tbody>
</table>

Table 4 and Table 5 summarize the context types in Ionin et al.’s and Trenkic’s studies. Trenkic replicated the experiment using Ionin et al.’s test items and added two new context types (i.e. the shaded rows in the above table) that can distinguish between the specificity value and the ESK value. Sentence 83 (already introduced above) is an example of the [-definite, +specific, -ESK] context and sentence 84 below is an example of the [+definite, +specific, -ESK] context. In sentence 83, ‘introductory this’, which is an indefinite referential demonstrative, can also be used in place of the indefinite article, confirming that it is a [+specific] context.

84. [+definite, +specific, -ESK]

    Paul: Will Bob join us for lunch?

    Sheila: No, he’s very busy. He is meeting with (a, the, --) director of his company. I don’t know who that person is, but he will decide whether Bob gets his promotion or not.
Trenkic’s test results showed that participants (L1 Mandarin Chinese speakers of English) overused the definite article in [+ESK] contexts, and overused the indefinite article in [-ESK] contexts, establishing a correlation between learners’ choice of articles and stated or denied familiarity with the referent, rather than a correlation between the choice of articles and the value of specificity as claimed by the Fluctuation Hypothesis.

In response to Trenkic’s challenge, Ionin, Zubizarreta, and Philippov (2009) argued that their operationalization of specificity as ESK is supported by the use of ‘introductory this’ with indefinites in natural languages as shown in two previous findings. Ionin (2003, 2006) showed that native English speakers find the use of the specific indefinite marker this more felicitous in contexts where the speaker considers the referent noteworthy via an indication of ESK. Ionin (2006) also found that native English speakers find this more acceptable in those indefinite contexts set up as [+specific] than those set up as [-specific].

Ionin et al.’s counter-arguments are not entirely cogent. The two findings cited as evidence from natural language data can at best demonstrate that the use of this is related to the noteworthiness of the referent but mention of the noteworthy property can occur in either a [+ESK] context or a [-ESK] context. Also, the fact that native speakers find this more acceptable in [+specific] contexts cannot justify the operationalization of specificity as ESK.

More relevant evidence comes from L2 learners’ self-reports. M. Yang and Ionin (2009) partially replicated Trenkic’s (2008) study and found the same phenomenon as Trenkic did: the overuse of the is greater in [+ESK] contexts than in [-ESK] contexts. In addition, however, they asked learners to explain their choice of articles in written form during the test. Learners’ responses indicated that specificity was the most frequent reason for their article choice, outnumbering the reasons given for ESK. Ionin et al. (2009) cited this study to argue that learners’ use of articles is influenced by specificity rather than ESK.

Learners’ self-reports can be considered direct evidence of their metalinguistic knowledge of the use of articles, but in Yang and Ionin’s study learners’ responses appeared somewhat contradictory and this did not lend clear support to either side. For example, the participants (L1 Mandarin speakers) overused the in [-definite, +specific, -ESK] contexts and explained their overuse by the presence of a particular referent in 72% of the instances. The participants also overused a in [+definite, +specific, -ESK] contexts and explained their overuse by the absence of a particular referent in 62% of the instances. It seemed strange that learners should attribute converse reasons to the same [+specific, -ESK] contexts. Learners’ metalinguistic
reports on article usage may not be very reliable, as learners may not be equipped with the right terminologies to describe the semantic context where articles are used and on some occasions they rely on intuitions which are hard to formulate. Further research is needed to answer what part in article semantics affects learners’ article choice and for this purpose the operationalization of the concept of specificity needs to be properly dealt with.

I will summarize the definitions of specificity in previous studies on article acquisition before proposing how to operationalize this concept in my study.

Definition 1. The speaker has in mind not any instance of the class but some unique or particular instance of that class (R. Brown, 1973, among others).

Definition 2. ‘The speaker intends to refer to a unique individual in the set denoted by the NP and considers this individual to possess some noteworthy property’ (Ionin et al., 2004, p. 65).

Definition 3. The speaker intends to refer to a unique individual, regardless of whether this individual possesses any noteworthy property (Trenkie, 2008).

The first definition, labelled by Trenkie as ‘speaker specificity’, is widely adopted explicitly or implicitly in previous studies. The second and third definitions, called ‘discourse specificity’, stress the speaker’s intention to refer, differing only in whether the thing referred to should have a noteworthy property. The following two examples (the second of which was introduced earlier and repeated here) will help us see the difference between the above three definitions.

85. Eric: My friend Tom was in his office at the university, but he really didn’t want to work.

Bill: So what did he do?

Eric: Well, he walked around my department. He had some coffee and checked his e-mail. And he talked to a student.

(Ionin et al., 2004, p. 69, ex. 38)

86. Office gossip

Gina: …and what about the others?

Mary: Well, Dave is single, Paul is happily married, and Peter … he is engaged to a merchant banker, but none of us knows who she is, or what she’s like.
(Trenkic, 2008, p. 4, ex. 7)

For sentence 85, Definition 1 would regard a student a specific referent as it is a particular referent in the speaker’s mind, not an arbitrary member of the class, while Definitions 2 and 3 would classify it as a non-specific referent, as the speaker’s intention to refer is not perceived in the context where the speaker does not proceed to talk about the referent. For sentence 86, Definition 2 holds it to be non-specific as it does not satisfy the condition that the referent should possess some noteworthy property. On the contrary, Definition 3 regards it as specific, taking the speaker’s denial of explicit knowledge of the referent as evidence of his intention to refer. According to Definition 3, the speaker’s intention to refer suffices for a specific context. This sentence is also a specific context according to Definition 1. As we can see, previous studies have operationalized ‘specificity’ in different ways. It is not surprising that they come to different conclusions regarding whether the specificity distinction plays a role in learners’ choice of articles.

The distinction between what Trenkic called ‘speaker specificity’ and ‘discourse specificity’ reflects the divide between ‘semantic specificity’ and ‘pragmatic specificity’ as discussed in Section 2.3.1. Ionin et al.’s (2004) and Trenkic’s (2008) studies both define specificity in a pragmatic way, except that Ionin et al. were not consistent in adhering to their own definition. Take sentence 86 for example. In accordance with the definition of specificity as the speaker’s intent to refer, the context in sentence 86 can be regarded as [+specific]. Even though the speaker expressed ignorance of the merchant banker, the denial of knowledge of the referent in itself constitutes the speaker’s intention to refer. Ionin et al., however, categorized this context as [-specific], which runs afoul of their own definition. Trenkic is justified in pointing out the problem with Ionin et al.’s design and redesigned their contexts, but the problem with the definition of specificity is only partially solved at this point. For the current study I find it necessary to code semantic specificity and pragmatic specificity separately. Semantic specificity characterizes whether the noun phrase denotes a unique referent at the sentence level while pragmatic specificity highlights the communicative intention of the speaker in the discourse. It would be interesting to see how learners evaluate the contexts where articles are needed and whether their choice of articles is affected by communicative purpose.
Huebner (1983) described the generic context as [-SR, +HK] where all three articles (i.e. the, a and zero) can be used. This specification of the generic context seems to be problematic. The defining notions ‘specific reference’ and ‘assumed hearer’s knowledge’ in Huebner’s framework mean different things in generic and non-generic contexts. For example,

87. A tiger is a beautiful animal. [-SR, +HK]

88. The tiger is a beautiful animal. [-SR, +HK]

89. The tiger that Pi stayed with on the sea didn’t even turn its head to bid him farewell after they landed. [+SR, +HK]

90. I want to keep a tiger as a pet. [-SR, -HK]

Let us first look at how ‘assumed hearer’s knowledge’ can describe generic and non-generic contexts. For sentence 87, Huebner’s framework labels the generic a context as [+HK]. Huebner gives no explanation of why it is specified as such but Bickerton (1981), whose semantic space for English articles was the precursor to Huebner’s semantic wheel, did make a remark about this: generics are information presumably shared by the speaker and listener, because ‘everyone can be assumed to know class names’ (p. 248). Hearers’ knowledge of a class name and that of an individual in a class are clearly different and therefore it seems far-fetched to describe them using the same feature of ‘assumed hearer’s knowledge’. To elaborate a bit, the tiger is [+HK] in sentence 89 because the listener knows which tiger the speaker refers to while the same noun phrase is [+HK] in sentence 88 because the hearer knows what a tiger is as a species. Similarly, for sentence 90, the hearer does not know which individual tiger the speaker refers to, but the hearer knows the species. The confusion here suggests that it is necessary for us to modify Bickerton’s framework and view generic contexts separately from non-generic ones. In addition, there is another reason to treat generic contexts differently. For the three non-generic contexts, the value of ‘assumed hearer’s knowledge’ can distinguish the use of the definite article from the indefinite article and zero article. In other words, the is associated with [+HK], while a or zero is associated with [-HK] in non-generic contexts. This neat semantic distinction is undermined when the generic context is subsumed into the framework. Ionin (2003) also expressed similar confusion as to why [-SR, +HK] is assigned to the generic context and how it can explain that singular generics can either occur with a or the (p. 2).
Apart from the fact that [+HK] cannot convincingly account for genericity, [-SR] alone cannot characterize a generic context. The current research did not identify ‘non-specific’ with ‘generic’ but viewed ‘non-specific’ as one of the two conditions for generic NPs, the other being the NP functions as subject of a charactering sentence (see Section 2.3.3).

2.6 Conclusions

This chapter started by introducing how the indefinite article is used as laid out in descriptive grammar, followed by a more theoretical exploration of referential features encoded by articles (i.e. specificity, definiteness and genericity). I then reviewed and summarized findings on the acquisition of the indefinite article from both longitudinal and cross-sectional SLA studies. Learners overuse the where a should be used or omit a where it should be supplied. The commission and omission errors are reported to be related to several factors, such as noun countability, syntactic constructions and the semantic and pragmatic meanings of the context. Given the previous empirical findings, the corpus study coded the contexts for article usage along these lines to further explore whether and how learners’ use of the indefinite article is affected by different formal, syntactic, and semantic-pragmatic features. Among these features, the semantic-pragmatic feature is highlighted in previous studies as creating difficulties for article acquisition. I have devoted a lot of space to discussing the definition of these semantic-pragmatic features and how they were operationalized in different ways in previous studies, leading to conflicting results. Drawing on the linguistic literature on article semantics, I have compared the different definitions of specificity in SLA studies and demonstrated the need to separately code semantic and pragmatic specificity and to treat ‘generic contexts’ as different from ‘non-specific’ contexts. Also while I have given prominence to the use of the indefinite article in a rule-governed creative way, I have also dealt with a minor but not less important language phenomenon: chunks. Criteria that have been used to identify chunks in previous studies have been introduced. In the following chapter, I will describe the methods used in the corpus study and the elicitation study. I will present a coding system that builds on the previous findings and put forward operational criteria to identify chunks in the corpus study. I will also introduce definitions for the key semantic concepts (e.g. semantic specificity and pragmatic specificity) and how these are operationalized in the current research.
Notes

1 Perhaps it is better to say that sensitivity is a noun with both a count form and a noncount form than to say that sensitivity is a normally noncount noun that can sometimes be modified by the indefinite article. The fact that many nouns can have both a count and a noncount form and the nuances suggested by different forms prove difficult for L2 learners. In this regard, grammar books can help little apart from telling learners whether nouns are countable or not.

2 To be exact, the given examples 16a and 16b are not strictly generic sentences. The noun phrase (a) dependence is kind-referring, but the whole sentence is not a characterizing sentence. However, this is not relevant to the discussion of countability.

3 Givón used the term ‘referentiality’ rather than ‘specificity’. In this thesis, ‘referential’ and ‘non-referential’ are treated as synonyms of ‘specific’ and ‘non-specific’, as they are usually used interchangeably in the literature. Nevertheless, some linguists, such as Bach (2008), have an issue with whether or not the specific use of indefinite expressions can refer, and would certainly be unhappy with the identification of specificity with referentiality. The question of referring and non-referring is another topic beyond the scope of this thesis. The current study is only interested in the concept of specificity and will stick to this term to avoid confusion.

4 Some linguists, such as Prince (1981) and Ionin (2006), regard non-demonstrative this as a specific indefinite article. The current study adheres to a traditional three-article system comprised of a, the and zero article, and will only look at the indefinite article a, but will mention this as a diagnostic device for a specific context.

5 In this sentence, this is not used to refer to an individual in the immediate environment but is used like a presentative marker that introduces a topic. Non-demonstrative this can refer to an individual that is not visible to the interlocutors.

6 This test item is designed to be a [+definite] context, but it neglects the fact that a bookstore can have several owners in which case a can also be chosen.

7 As mentioned earlier in a similar case, a company can have several directors, which makes the choice of a possible in this context, but this fact is neglected by the researchers.
Chapter 3 Methods

3.1 Introduction

This chapter will first introduce the research questions, and then explain the purpose of the research and the two approaches to answering the research questions. As the current research consisted of two studies of a different nature (i.e. a corpus study and an article elicitation study), the detailed methods for each study will be introduced separately. For each study, the source of data, the instruments developed to elicit data, the participants, the procedures involved in collecting data and the tools used to analyze data will be introduced. Brief results from the piloting of the elicitation instruments as well as the changes made after the pilot will be introduced before the main study is described. This chapter will not go into detail about how the data were analysed, as the specific statistical methods used will be explained at the beginning of each results chapter.

3.2 Research purpose and research questions

The acquisition of articles is often cited as one of the most difficult aspects of English grammar for L2 learners. Previous studies show that learners have problems with all of the three articles, and especially with the indefinite article. Learners overuse the where a should be used or omit a where it should be supplied. For L2 learners whose first language is article-less (e.g. Chinese), the acquisition of English articles is even more difficult. The current research explores how Chinese students use the indefinite article and whether their omission or commission errors are related to certain grammatical, linguistic and semantic-pragmatic contexts. To this end, the research carried out two studies, i.e. a corpus study and an article elicitation study. The corpus study examined the learners’ use of the indefinite article in their compositions and coded the article usage in terms of the (mis)use of the indefinite article, formal properties of nouns, linguistic contexts of NPs, and semantic-pragmatic contexts of NPs. The elicitation study used a grammaticality judgment test and an article choice test to elicit learners’ knowledge of the indefinite article in different syntactic and semantic-pragmatic contexts. The corpus has the advantage of reflecting more natural production (as opposed to artificially elicited data) and allows us to see how learners use the indefinite article in writing. However, the corpus has some disadvantages as well. Some semantic
contexts (for example, the generic context) are scarce in the corpus due to the general low frequency of such contexts in naturally occurring data and therefore are not enough to enable a meaningful comparison with other semantic contexts. Also, learners may have avoided using structures that they were not certain of and not many errors regarding the indefinite article could be found. Finally, sentences freely produced by learners have a number of semantic or syntactic contexts intertwined and are not ideal for investigating the effect of a single factor as the other factors cannot be controlled. Hence there is a need of an elicitation study that can compensate for the limitations of the corpus study.

The two sources of data allowed us to explore the research questions from different perspectives and therefore will yield a more comprehensive picture of learners’ knowledge of the indefinite article. Note that each study could not answer all the research questions of this thesis, but the two studies together do address all the research questions, while some questions were dealt with in both studies. The research questions are presented below.

1. How accurate is Chinese L2 learners’ knowledge of the indefinite article?

2. How are the formal properties of nouns (e.g. countability and concreteness) related to learners’ (mis)use of the indefinite article?
   2.1 Is the countability of nouns related to learners’ (mis)use of the indefinite article?
   2.2 Is the concreteness of nouns related to learners’ (mis)use of the indefinite article?

3. How are the linguistic contexts of NPs (e.g. the grammatical function of NPs in a sentence and whether there are modifiers in the NP) related to learners’ (mis)use of the indefinite article?
   3.1 How are the grammatical functions of NPs in a sentence (i.e. subject, object, and complement) related to learners’ (mis)use of the indefinite article?
   3.2 How are the modifiers in the NP related to learners’ (mis)use of the indefinite article?

4. How are the semantic contexts of NPs (i.e. specific, non-specific, and generic contexts) related to learners’ (mis)use of the indefinite article?

5. How are the semantics of ‘specificity’ related to learners’ (mis)use of the indefinite article?
5.1 Is the semantic specificity of NPs linked to learners’ use of the indefinite article?

5.2 Is the pragmatic specificity of NPs linked to learners’ use of the indefinite article?

5.3 Is the explicitly stated knowledge (ESP) of NPs linked to learners’ use of the indefinite article?

3.3 Corpus study

This study drew on ready-made data from the Chinese Learner English Corpus (CLEC) (Gui & Yang, 2003), a major annotated English learner corpus with Chinese students as participants. Learners’ uses of the indefinite article in their compositions were coded according to a multi-layered coding system that characterized the context by various features (i.e. suppliance of the indefinite article, properties of nouns, grammatical functions of noun phrases, modifiers associated with the nouns, and the semantic and pragmatic meanings of the noun phrases). The corpus study addressed research questions 1, 2, 3, 4 and 5 (5.1 and 5.2). The data source, the steps followed in arriving at the coding scheme, the coding scheme, the coding principles and procedures, and the changes made on the coding scheme after piloting are described below.

3.3.1 Data

3.3.1.1 Corpus description

The Chinese Learner English Corpus (CLEC), started in 1997, consists of more than 1 million words of English compositions written by Chinese high school students and university students. CLEC comprises five sub-corpora, consisting of compositions written by students of five different proficiency levels. This study focuses on the writing of non-English major university-level students and involves two sub-corpora of CLEC.

The majority of the compositions in CLEC are test compositions and the remaining are compositions written in the classroom or after class. The tests that contribute to the corpus are CET-4 (College English Test Band 4) and CET-6 (College English Test Band 6), both of which are widely used English language proficiency tests in China targeting non-English major university-level students. CET-6 is for a higher level of proficiency than CET-4. First- and second-year students are the major participants of CET-4, and third- and fourth-year students are the major participants of CET-6, which explains why the corpus, predominantly
made up of test compositions, combines the compositions of first- and second-year students into one sub-corpus (named ST3), and the compositions of third- and fourth-year students into another sub-corpus (named ST4). The current study selected 101 compositions from these two sub-corpora.

3.3.1.2 Sample selection

The texts in CLEC could be divided into four types: argumentative, narrative, practical and expository compositions. The vast majority of compositions are argumentative writing. In case the text type has an effect on the distribution of nominal contexts, the study chose texts of different types, trying to balance out the potential effect of the text type. As there are only limited numbers of practical compositions and expository compositions, it is not feasible to choose a comparable number of texts representative of these two text types. It should be noted that all the argumentative compositions in the two non-English major university students sub-corpora come from tests. Thus they differ from the narrative compositions, which were not written under pressure as part of a test. Due to the limitation of the corpus, the study could not control for the conditions of writing if texts of different types were to be included. The difference in writing conditions may have had an effect on the participants’ use of articles, but this cannot be determined in this study.

The topics of the test compositions are very restricted. Here are the three examples of topics: *Global shortage of fresh water; Practice makes perfect;* and *Getting to know the world outside the campus*. The free writing topics are more varied. To avoid the potential homogeneity of nominal contexts (i.e. the same types of nouns occurring due to the same topic), the study also chose a proportionate number of texts on different topics, such as: *Pop music and folk music; An unforgettable experience; The ideal job I pursue; Friendship; What is trust; Computers;* and *A basketball game*. Table 6 presents a summary of the texts coded and analysed in the study.
Table 6 Summary of the current sample

<table>
<thead>
<tr>
<th>Sub-corpora from CLEC</th>
<th>Participants</th>
<th>Sample size</th>
<th>Text type</th>
<th>Conditions of writing</th>
<th>Topics</th>
</tr>
</thead>
<tbody>
<tr>
<td>ST3</td>
<td>Non-English major first- and second-years</td>
<td>24</td>
<td>Argumentative</td>
<td>Test setting</td>
<td>3 test topics (listed above) in CET-4 (8 pieces on each topic)</td>
</tr>
<tr>
<td></td>
<td>n = 71</td>
<td>44</td>
<td>Narrative</td>
<td>In class or after class</td>
<td>Assorted topics</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3</td>
<td>Practical and expository</td>
<td>In class or after class</td>
<td>Assorted topics</td>
</tr>
<tr>
<td>ST4</td>
<td>Non-English major third- and fourth-years</td>
<td>30</td>
<td>Narrative</td>
<td>In class or after class</td>
<td>Assorted topics</td>
</tr>
</tbody>
</table>

3.3.2 Coding scheme

A multi-layered coding system was developed to code learners’ use of the indefinite article and their commission and omission errors related to the indefinite article. I will briefly introduce the steps I followed in developing the coding scheme before presenting the entire coding scheme.

1. After a review of literature on article acquisition, I identified the potential factors that may have an effect on learners’ accuracy in using the indefinite article. Learners’ use of the indefinite article can be affected by various linguistic and semantic-pragmatic factors, such as the properties of nouns (e.g. countability of nouns and abstractness/concreteness of nouns), the linguistic contexts of the NPs (e.g. the grammatical functions of NPs), and the semantic-pragmatic contexts of NPs (e.g. specificity of the contexts). These aspects became the major layers of the coding system.

2. I reviewed the linguistic literature on the above aspects of NPs (e.g. noun properties, grammatical functions of NPs, and semantics of articles) and defined all the coding concepts in the coding scheme.

3. Before I could apply the coding scheme, I decided on the contexts of interest that the coding scheme would apply to. The current study only focused on creative language use and thus discounted chunks that are likely to be rote-learned and produced as a lexical bundle. To
rule out chunks, I formulated a set of criteria to identify chunks (which will be introduced later).

4. Using the tentative coding system, I coded 14 texts and trained a second coder who also coded these 14 texts. We discussed and resolved all the issues in the process of coding and made small changes to the coding scheme. We coded another 18 texts independently and compared notes. A satisfactory level of agreement was achieved and thus the coding system was finalized.

In the following sections, I will introduce the coding system and the coding procedures in detail.

### 3.3.2.1 Contexts of interest

The contexts that are within the scope of this study can be classified into two kinds:

1. All the contexts where the learner used the indefinite article, either correctly or incorrectly. For example,

91. Nemo is a clownfish. (It is a correct use of *a*.)

92. The window opens to a sea. (*A* is used incorrectly here; *the* should be used instead.)

2. All the contexts where the indefinite article is required but the learner either omitted it or used the definite article in place of the indefinite article.

93. Alice is little girl. (The learner omitted *a*.)

94. I bought you the book. (The learner overused *the* to *a* when mentioning the referent for the first time.)

The contexts of interest for the current study included all the surface ‘*a*’s (where *a* is supplied) and omission of ‘*a*’s (where *a* should be supplied), and thus they included the correct suppliance of the indefinite article and related errors, i.e. omission of *a*, overuse of *the* for *a*, and overuse of *a* for other articles.

### 3.3.2.2 Criteria to identify chunks

The above-described contexts of interest only apply to NPs that are not chunks. Chunks are lexical bundles that may be rote-learned and retrieved from memory as a whole by learners at
the time of production without subjecting them to rule analysis. Therefore, the study eliminated chunks containing the indefinite article from the analysis of creative uses (i.e. non-chunks). An operational criterion to identify chunks is to examine whether or not the indefinite article in the word sequences can be replaced by the definite article or the zero article. To illustrate how the criterion works, we need to distinguish between three conditions. Phrases with the indefinite article replaced by other articles will become:

1) grammatically incorrect in all contexts; or
2) grammatically correct in other contexts, but lose the original idiomatic meaning; or
3) grammatically correct in other contexts, and basically undergo no changes in meaning except a change in plurality or referential point of view.

For example, *after a while* cannot be changed into *after while*, *after whiles*, as they are grammatically incorrect regardless of context. *In a word* can be changed into *in word* or *in words* which can be grammatically correct in different contexts, but the changed forms will not have the ‘in short’ meaning conveyed by *in a word*, as can be seen from examples 95-96 drawn from the Corpus of Contemporary American English (COCA) (Davies, 2008-):

95. And he is supposed to be pure in thought and in word and in deed.

96. They weep and express their sorrow first in meaningless syllables, then in words.

The majority of the noun phrases fall into the third category listed above. Frequent word combinations such as *a good habit*, *take a photo*, *a college student*, and *a serious problem* can be used with different articles in different contexts. We cannot predict whether a learner has used the article correctly if we only look at the forms of these word combinations isolated from their contexts. Here are two examples from COCA (Davies, 2008-) with different articles before the collocation *good habit*,

97. Noticing small signs is a good habit when you take your living from wild land.

98. Get in the good habit of asking yourself and those around you to question more things more often.

The use of articles requires the speaker to take into account a combination of grammatical, semantic and pragmatic contexts. Fixed multiword combinations that defy breakdown or that will undergo a change in core meaning with a replaced save the speaker the mental effort of
analysing how the expression can fit to the context. Accordingly, these are the ‘chunks’ we are concerned about and they are separated from phrases that have a more creative use of *a*. To sum up, phrases in the first and second categories discussed above are identified as chunks in the corpus study, but those in the third category are not chunks.

To clarify, some patterns are very likely to be memorized and produced as a prefabricated lexical bundle, but they do not fit our criteria for chunks. For instance, *I’m a…*, a cliché sentence pattern in self-introduction, can be filled in with myriad nouns expressing roles and positions. This pattern, although chunklike, is not regarded as a chunk in our study, as the indefinite article in this pattern is subject to change in different contexts. There are many occasions that *I’m the…* should be used instead of *I’m a…*, such as in the following sentence:

99. I’m the director of ‘A Beautiful Mind.’

*I’m a…* fits into the third category of collocations discussed above. The pattern itself is not fixed and *a* can be replaced by other articles. Memorizing *I’m a…* or *I’m the…* cannot guarantee a correct use, unless learners know when different articles should be used. That is to say, production based on this pattern still involves processing grammatical rules and the pragmatic situation rather than just an unanalysable quick retrieval from memory.

To conclude, the above criteria were used to identify chunks. Among the chunks, the study distinguished between ‘native-like chunks’ (e.g. *in a word*) and ‘non-native-like chunks’ (e.g. *in a words*, which is a wrong form of the chunk) for the purpose of classification, but would not further discuss the use of the indefinite article in chunks.

### 3.3.2.3 Coding system

The final coding system comprises three layers, characterizing the contexts of interest in terms of the suppliance of the indefinite article, the formal determinants of article usage, and the semantic-pragmatic meaning of the context. Chunks were identified and not coded by these features, as the study did not analyze chunks that tend to be memorized as a whole lexical bundle. I will explain each code with examples below.

#### Suppliance of indefinite article

The first layer of the coding system relates to the suppliance of the indefinite article. All the contexts of interest can be divided into obligatory occasions or non-obligatory occasions for
An obligatory occasion simply refers to a context where a should be used, and a non-obligatory occasion is where a should not be used. In obligatory occasions when a is not supplied, we can expect to see two kinds of errors, that is, omission and commission. If a learner omitted a where a should be used, it is an error of omission; if a learner used the or numeral one where a should be used, it is an error of commission. According to previous studies (e.g. Robertson, 2000), Chinese learners may overuse the numeral one for a, so this type of commission is also coded. A learner may also use a where it is not required, which gives us a non-obligatory occasion for a. Non-obligatory occasions are further divided into overuse of a for the and overuse of a for zero article. Here are some examples illustrating the coding system,

100. Oscar Wilde is more than a playwright. (a is supplied on an obligatory occasion, coded ‘ob1’)

101. *He ate apple. (an is omitted on an obligatory occasion, coded ‘ob2’)

102. *He drew the picture. (the is overused where a should be used, coded ‘ob3’)

103. *Cassandra is a girl I mentioned to you yesterday. (a is overused on a non-obligatory occasion where the should be used, coded ‘nob1’)

Learners’ confusion between a and an is coded ‘an’, but this code only exists when the learner has actually supplied the indefinite article.

104. *A apple a day keeps the doctor away. (a is misused for an, coded ‘an’, but this token still figures as a case of suppliance)

The system also codes other occasions that are neither obligatory nor non-obligatory occasions for the indefinite article. There are contexts where the learner either omitted a or a plural marker, or omitted a or the (coded ‘mis’), as in sentence 105. For contexts where a occurred with plural nouns, it is coded as ‘plu’.

105. *We lighted candle. (a candle or candles should be used, coded ‘mis’)

When the learner used the or zero article where a was also acceptable, this occasion is coded as ‘accp1’; when the learner used a where the or zero article could also be used, this occasion is coded ‘accp2’ (as in sentence 106).
Many people have an opinion that we can use fresh water to our own need. (a correct use of *an*, but *the* can also be used here)

Finally, there is an ambiguous code for occasions when the context is insufficient and makes it impossible to decide which article should be used. There is a corresponding code for ambiguous cases in each coding category. Note that these ‘other occasions’ were not subject to error analysis, as it could not be decided whether they constituted obligatory or non-obligatory occasions for the indefinite article.

**Formal determinants of usage of indefinite article**

The second layer of the coding system codes the formal determinants of the usage of the indefinite article. This layer has two factors of concern: properties of nouns (i.e. countability and abstractness/concreteness of nouns) and linguistic contexts where the NP occurs (i.e. grammatical functions of NPs and modification in the NPs).

**Countability**

Traditional grammar books usually distinguish between count nouns and noncount nouns. A count noun is seen as ‘denoting individual countable entities and not as an undifferentiated mass’; a noncount noun is seen as ‘denoting an undifferentiated mass or continuum’ (Quirk et al., 1985, p. 246). But countability is not a fixed phenomenon, as the same noun can have both a count form and a noncount form (i.e. a mass form), depending on the context. This also partly explains why learners find it hard to distinguish count and noncount nouns.

The current study did not code a noun in terms of the general count/noncount categories, but in terms of whether the noun had a count form or noncount form, in other words, whether the noun should have the indefinite article. For example, the noun ‘love’ is defined in dictionaries as a singular uncountable noun in the sense of ‘a strong feeling of pleasure and enjoyment that something gives you’ (e.g. *my love of nature*). This is clearly an uncountable noun, as it cannot be pluralized. However, it can have a singular form as in ‘*have a love of nature*’. In this case, ‘love’ is coded as a noun that can have a count form (labelled ‘co1’). In addition, if the noun can have either a count form or a noncount form, a code indicating dual countability (named ‘co3’) was used to represent this feature. See the following example from Quirk et al. (1985, p. 287).
She played the oboe with (a) charming sensitivity. (here *sensitivity* can either have a count form or a noncount form, coded ‘co3’)

**Abstractness/concreteness**

Previous studies (e.g. Trenkic, 2002) show that learners’ perception of countability may be influenced by the concreteness or abstractness of nouns. Thus the coding system also gives due consideration to the concrete/abstract distinction. A concrete noun is ‘accessible to the senses, observable, measurable, etc.’, while an abstract noun is ‘typically nonobservable and non-measurable’ (Quirk et al., 1985, p. 247), or to put it more simply, the former is material while the latter is immaterial.

She had great beauty in her youth. (a noncount, abstract noun, coded ‘co2’, ‘ab2’)

She was considered a great beauty in her youth. (a count, concrete noun, coded ‘co1’, ‘ab1’)

**Grammatical functions**

Grammatical function in this study not only refers to the function of the NP as a clausal element, but also to the function of the NP as part of another phrase that is a constituent of a clause. The classification of NP functions in this study was based on Preisler (1997) and Lang (1989, 2010) with some modifications.

Preisler (1997) listed four major functions of NPs:

1) NP as subject, object, and subject/object complement;
2) NP as adverbial;
3) NP as a constituent of another NP;
4) NP as a constituent of the adjective/adverb phrase.

The above four types of NP functions fall into two categories: the first two types are immediate constituents of clauses (i.e. clausal elements) and the latter two types are constituents of noun/adjective/adverb phrases that themselves are clausal elements. As the current study is interested in the function of NPs, if NPs were not immediate constituents of clauses, they were coded in terms of their functions in the phrase that contains the NP.

The present study coded the following grammatical functions of NPs: subject, object (including direct object and indirect object), complement, and adverbial as NP functions on
the clausal level; prepositional complement, premodifer, postmodifier, appositive, conjoin
and partition as NP functions on the phrasal level, and absolute for NPs in non-sentences or
elliptical sentences. The coding system did not distinguish the hierarchies of the clauses in
cases of embedding, and only coded NP functions on the clausal level that they were
immediately related to. To give an example,

110. Mozart is a prolific composer who showed a talent at a rather young age.

Here the noun phrase a prolific composer is modified by an attributive clause who showed a
talent at a rather young age. The NP a prolific composer is coded as complement of the
sentence, a talent is coded as object in the embedded clause, and a rather young age is
prepositional complement. Each NP was coded according to the immediate function it played
in the clause, regardless of whether the clause was subordinated to another clause or not. I
will now introduce one by one the NP functions that were coded in the current study.

Subject

Subjects, objects and complements are the most common functions that NPs serve in a clause.
Among these, the subject is the most important clausal element as it is most often present in a
clause while the presence of the other elements can be optional. The subject usually occurs
before the verb, except in some interrogative clauses. For instance,

111. A cat is purring. (a cat is the subject, coded as ‘subj’)

Direct and indirect object

Objects can be divided into direct and indirect objects. The current coding system only coded
the NP before the direct object as indirect object, while the NP following a preposition (e.g.
to) was coded as prepositional complement to avoid potential confusion, following the
suggestion of grammarians such as K. Brown and Miller (1991) and Miller (2002).

112. She gave a girl the present. (a girl is the indirect object and the present is the direct
object)

113. She gave the present to a girl. (a girl is the prepositional complement)

Complement
Complements are generally classified into subject complements and object complements. The former kind usually follows the subject and the verb while the latter follows the direct object; both of them are in a copular relation with the element they characterize. The present study, however, did not code them separately.

114. He turned out to be a spy. (a spy is a NP functioning as a subject complement)

115. She called him a traitor. (a traitor is an object complement following the objective pronoun him)

**Adverbial**

An adverbial is not as closely tied to an NP as a subject, object or complement, as it can take a variety of forms such as adverbs and prepositional phrases. There are three main types of adverbials: circumstance adverbials, stance adverbials and linking adverbials (Biber, Johansson, et al., 1999). Circumstance adverbials tell the circumstances of an action or state, such as for a week, stance adverbials are usually comments on the content of the clause, such as to put it mildly, and linking adverbials provide a link between clauses such as on one hand...on the other hand... There were not many cases of NPs functioning as adverbials, but here is one example:

116. The grand conference lasted a week. (a week is an adverbial)

**Prepositional complement**

Prepositional complement refers to an NP as part of a prepositional phrase. The present coding system treated all the verb complements introduced by a preposition as prepositional complements, not discriminating between indirect object and the NP in directional phrases, as already mentioned. To give another example,

117. The ferry goes to a deserted island.

**Premodifier and postmodifier**

On the phrasal level, a NP can be a premodifier or postmodifier of a head in another NP or in an adjective/adverb phrase. Here are two examples from Preisler (1997, pp. 154-155):

118. The accident happened two months ago. (two months is a premodifier in the adverb phrase two months ago)
That necklace must be worth a fortune. (*a fortune* is a postmodifier in the adjective phrase *worth a fortune*)

**Appositive**

An appositive as in the NP *Oscar Wilde, an English playwright* is a kind of postmodifier that refers to the same person or thing as the head. Due to its special function, the current coding system separated appositives from the rest of postmodifiers.

**Absolute**

The above grammatical functions are assigned to NPs as clausal elements or as constituents of phrases. If NPs occur in non-sentences or elliptical sentences such as *(A) good idea!* or *What a dog!*, they are coded as ‘absolute’, borrowing the term from Lang (1989, 2010). In such contexts, it is impossible to analyse the NP in relation to the rest of the clause or in relation to another phrase that contains it.

**Partition**

Partitive nouns, by definition, refer to nouns that denote a part-whole relation in a partitive construction. In partitive constructions, a NP in the form of a partitive count noun followed by an *of*-phrase, can express both quality partition as in *a kind/sort/type of cheese*, and quantity partition as in *a bite/loaf/kilo/bag of bread*, according to Quirk et al. (1985). Partitive constructions that take the form of ‘a (partitive noun) of (noun)’ are a common pattern in daily language. As the current coding system only identified totally fixed lexical bundles as chunks, partitive constructions were not coded as chunks. Instead, the coding system marked partition as a grammatical function of NPs.

To conclude, the current coding system coded eleven grammatical functions of NPs in order to investigate the potential relation between NP functions and learners’ use of articles. Table 7 summarizes the codes with definitions and examples.
### Table 7 Grammatical functions of NPs

<table>
<thead>
<tr>
<th>Code</th>
<th>Name</th>
<th>Definition</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>subj</td>
<td>Subject</td>
<td>A NP as subject of a clause</td>
<td>[A cat] is a marvellous creature.</td>
</tr>
<tr>
<td>obj1</td>
<td>Direct object</td>
<td>A NP as direct object of a clause</td>
<td>She adopted [a cat].</td>
</tr>
<tr>
<td>obj2</td>
<td>Indirect object</td>
<td>A NP as indirect object of a clause</td>
<td>She sent [a girl] a gift.</td>
</tr>
<tr>
<td>comp</td>
<td>Complement</td>
<td>A NP as complement of a clause</td>
<td>The cat is [a domesticated tiger].</td>
</tr>
<tr>
<td>adv</td>
<td>Adverbial</td>
<td>A NP as adverbial of a clause</td>
<td>The conference lasted [a day]!</td>
</tr>
<tr>
<td>prep</td>
<td>Prepositional</td>
<td>A NP in a prepositional phrase</td>
<td>She adorned the cat with [a bow tie].</td>
</tr>
<tr>
<td></td>
<td>complement</td>
<td></td>
<td></td>
</tr>
<tr>
<td>prm</td>
<td>Premodifier</td>
<td>A NP as premodifier in another NP or in an adjective/adverb phrase</td>
<td>This is [a girl’s] name.</td>
</tr>
<tr>
<td>pom</td>
<td>Postmodifier</td>
<td>A NP as postmodifier in another NP or in an adjective/adverb phrase</td>
<td>It is worth [a dollar].</td>
</tr>
<tr>
<td>appo</td>
<td>Appositive</td>
<td>A NP as a postmodifier that refers to the same person or thing as the head</td>
<td>Peter Pan, [a popular children’s book], is his favourite.</td>
</tr>
<tr>
<td>abs</td>
<td>Absolute</td>
<td>A NP in non-sentences or elliptical sentences</td>
<td>[A snake]! (The speaker exclaimed at the sight of a snake).</td>
</tr>
<tr>
<td>part</td>
<td>Partition</td>
<td>A NP in a partitive construction</td>
<td>The cub is drinking [a bottle of] milk.</td>
</tr>
</tbody>
</table>

**Modification**

The linguistic contexts of NPs include not only grammatical functions of NPs but also the level of modification the NPs have. Whether a NP has modifiers and how it is modified seem to have an effect on learners’ choice of articles, as suggested by quite a number of studies (Butler, 2002; Trenkic, 2008, 2009; Zhu, 2009). Motivated by this consideration, the current coding system specified different types of modification. Examples are given below:

120. I have a **cat**. (no modifier for *cat*, coded ‘mo1’)

121. I have a glamorous **cat**. (*cat* has a pre-modifier *glamorous*, coded ‘mo2’)

122. I have a **cat** that is good at hunting pests. (*cat* has a *that*-clause as a post-modifier, coded ‘mo3’)

123. I have a lazy **cat** that sleeps twelve hours a day. (*cat* has both a pre-modifier and a post-modifier, coded ‘mo4’)

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**Semantic-pragmatic factors**

Coding the semantic and pragmatic meaning of contexts is expected to be more difficult than coding formal features. Previous studies inquiring into the effect of specificity or definiteness on learners’ choice of articles have operationalized the referential concepts in different ways. This study has already devoted a lot of space in the literature review chapter to the discussion of the key referential features, i.e. specificity, definiteness, and genericity. This section will recapitulate how these concepts are operationalized in the coding system.

**Specificity**

The coding system distinguishes between ‘semantic specificity’ and ‘pragmatic specificity’. The former is a sentence-level notion while the latter is a discourse-level notion indicating the speaker’s referential intention. This distinction partly solves the controversy over the definition of specificity in prior studies which put emphasis either on the semantic side or the pragmatic side.

‘Semantic specificity’ is defined as:

A referent is specific if the speaker is assumed to be able to construct a unique mental representation of the referent.

‘Unique’ means being the only one of its kind. There should be only one entity conceived by the speaker to fit the description of the noun. The definition does not require the speaker to have direct contact with the referent, or to be able to objectively identify the referent. For example,

124. It is said that a **guy** in Wellington scooped the jackpot in this week’s lottery. (semantically specific, coded ‘se1’)

The speaker learned the news from hearsay and could not possibly know who the guy was, which does not interfere with the specific meaning of the referent. The fact that there is a unique guy in Wellington who won the lottery is independent of the knowledge of the speaker.

125. I want to buy a **book**. (ambiguous, coded ‘am7’)

126. I want to buy a **book**, any book that has a lot of pictures. (semantically non-specific, coded ‘se2’)


127. I want to buy a book titled ‘Cats rule and dogs drool’. (semantically specific, coded ‘se1’)

In the case of sentence 126, the speaker does not have any unique mental representation of the referent. Thus multiple entities that fit the definition of book can suit the purpose, while in sentence 127, the speaker has a unique object in mind that he or she wants to purchase. If there was not enough information to tell, as in sentence 125, the NP was coded as ‘ambiguous’. Table 8 summarizes the diagnostic devices that aided us in coding the semantic specificity of contexts (also see the detailed explanation in Section 2.3.1.3). But we shall be reminded that these devices are just loose cues and are not foolproof.

| Table 8 Diagnostic devices for semantic specificity |
|---------------------------------------------------|-------------------------------------------------|
| **Linguistic cues** | **Semantic specificity** | **Examples** |
| **Modifiers** |  |  |
| certain, particular, non-demonstrative this, etc. | +specific | A (particular) man wrote this book under a pseudonym. |
| Relative clause | +specific | There is a man who rang this morning asking to see you. |
| **Sentence types** |  |  |
| Interrogative | - specific | Did you write a letter to your parents? |
| Imperative | - specific | Pass me a hammer. |
| Negative | - specific | Sandy didn’t see a squirrel. |
| Copula | - specific | Jane Austen is a writer. |

Pragmatic specificity concerns the speaker’s intention to refer. We can only infer from the discourse whether or not the speaker has an intention to refer. A referential intention is usually manifested in the continuation of the topic. The discourse immediately following the referent can provide us with a clue as to whether the speaker intends to talk about it. The continuation of the topic can occur in two ways: either by mentioning the referent for the second time shortly afterwards or elaborating on the referent without actually mentioning it, both of which are considered as evidence of pragmatic specificity.
128. I bought a book the other day and spent a whole afternoon reading it. (Book is mentioned again immediately after its first appearance indicating the speaker’s referential intention, thus coded ‘pr1’)

129. It began to rain after I bought a book and started to go back home. When I got home, I was drenched! (The discourse does not show the speaker’s intention to refer to the book, thus coded ‘pr2’. Although the book is not pragmatically specific, it is semantically specific. It should be coded ‘se1’ at the same time.)

130. The police were investigating a robbery that occurred on the evening of Friday. Several world-renowned impressionist works had been stolen from an art gallery. (there is an elaboration of robbery in the following discourse, though the noun per se is not mentioned again, thus coded ‘pr1’)

**Definiteness**

The current study employs the notion of ‘definiteness’ in J. A. Hawkins (1978); that is, it adopts a hearer-oriented approach to view definiteness, rather than the speaker-oriented approach, as the former approach is relatively safe with respect to the appropriateness of usage, while the later approach requires the hearer’s cooperation in communication and may run the risk of testing the hearer’s tolerance.

To repeat the definition for ‘definiteness’:

When using a definite article, the speaker instructs the hearer to identify some shared set of objects and locate the referent or referents within this set. Hence the name ‘Location Theory’.

It should be noted that despite adopting a hearer-oriented approach to view definiteness, the study also recognized the use of the definite article with first-mention nouns if the usage could be understood as reflecting a certain perspective of the author. The judgement of acceptability depended on the context. There were some contexts where either a or the was acceptable, which is discussed later.

**Generic contexts**

The coding system only coded the referential features (i.e. semantic specificity and pragmatic specificity) of non-generic NPs. Generic nouns were not coded in terms of specificity for
reasons given in the literature review section. There is one guideline that helps us to pick out generic contexts, repeated below:

Indefinite singular NPs as subjects in characterizing sentences are coded ‘generic’. Indefinite singular NPs as subjects in particular sentences or in non-subject positions are non-generic.

131. A whale is a mammal. (It is a characterizing sentence where a whale is generic and should be coded ‘gen’, whereas a mammal is non-generic, to be exact, semantically non-specific.)

132. A whale stranded itself on land. (It is a particular sentence where a whale is semantically specific.)

133. He eats an apple every day. (It is a characterizing sentence, but the NP is not in the subject position. Apple is non-specific.)

The entire coding system has been introduced above. Table 9 is a summary of all the codes.

<table>
<thead>
<tr>
<th>Layer</th>
<th>Sub-category</th>
<th>Code</th>
<th>Label</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Obligatory occasions</td>
<td>ob1</td>
<td>Supplied in obligatory occasions</td>
<td>The learner used a where a should be supplied.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ob2</td>
<td>Omission in obligatory occasions</td>
<td>The learner omitted a where a should be supplied.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ob3</td>
<td>Overuse of the for a</td>
<td>The learner used the where a should be supplied.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ob4</td>
<td>Overuse one for a</td>
<td>The learner used numeral one where a should be used.</td>
</tr>
<tr>
<td></td>
<td>Non-obligatory occasions</td>
<td>nob1</td>
<td>Overuse of a for the</td>
<td>The learner used a where the should be used.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>nob2</td>
<td>Overuse of a for zero article</td>
<td>The learner used a where zero article should be used.</td>
</tr>
<tr>
<td></td>
<td>Other occasions</td>
<td>an</td>
<td>Confusion between a and an</td>
<td>A is used where an should be used or the other way around.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>mis</td>
<td>Omission of a or a plural marker, or omission of a or the</td>
<td>A context where either a or a plural form is missing, or a context where either a or the is missing</td>
</tr>
<tr>
<td></td>
<td></td>
<td>plu</td>
<td>Use of a with plural nouns</td>
<td>A context where a is used with plural nouns</td>
</tr>
<tr>
<td></td>
<td></td>
<td>accp1</td>
<td>Use of the or zero article where a is also acceptable</td>
<td>The learner used the or zero article where a could also be used.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>accp2</td>
<td>Use of a where the or</td>
<td>The learner used a where</td>
</tr>
<tr>
<td>Form</td>
<td>Description</td>
<td>Notes</td>
<td></td>
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<tr>
<td>------</td>
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<tr>
<td>am1</td>
<td>Ambiguity about suppliance</td>
<td>Occasions where it is hard to code the use of the article</td>
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<td></td>
</tr>
<tr>
<td>prop</td>
<td>Proper nouns</td>
<td>Specific names of people, places, etc.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>co1</td>
<td>Count form</td>
<td>Nouns that have a count form (i.e. a can be supplied)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>co2</td>
<td>Noncount form</td>
<td>Nouns that have a noncount form (i.e. a cannot be supplied)</td>
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<tr>
<td>co3</td>
<td>Dual countability</td>
<td>Nouns that can have either a count form or a noncount form (i.e. either a or zero article can be used)</td>
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<td></td>
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<tr>
<td>am2</td>
<td>Ambiguity about countability</td>
<td>Occasions where it is hard to code the countability of the noun</td>
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<td></td>
</tr>
<tr>
<td>ab1</td>
<td>Concrete nouns</td>
<td>Measurable nouns</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ab2</td>
<td>Abstract nouns</td>
<td>Non-measurable nouns</td>
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</tr>
<tr>
<td>am3</td>
<td>Ambiguity about concreteness</td>
<td>Occasions where it is hard to code whether the noun is abstract or concrete</td>
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<td>subj</td>
<td>Subject</td>
<td>A NP as subject of a clause</td>
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<td>Direct object</td>
<td>A NP as direct object of a clause</td>
<td></td>
<td></td>
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<td>obj2</td>
<td>Indirect object</td>
<td>A NP as indirect object of a clause</td>
<td></td>
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<tr>
<td>comp</td>
<td>Complement</td>
<td>A NP as complement of a clause</td>
<td></td>
<td></td>
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<tr>
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<td>Adverbial</td>
<td>A NP as adverbial of a clause</td>
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<td>A NP in a prepositional phrase</td>
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<tr>
<td>prm</td>
<td>Premodifier</td>
<td>A NP as premodifier in another NP or in an adjective/adverb phrase</td>
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<tr>
<td>pom</td>
<td>Postmodifier</td>
<td>A NP as postmodifier in another NP or in an adjective/adverb phrase</td>
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<tr>
<td>appo</td>
<td>Appositive</td>
<td>A NP as a postmodifier that refers to the same person or thing as the head</td>
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<td></td>
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<tr>
<td>abs</td>
<td>Absolute</td>
<td>A NP in non-sentences or elliptical sentences</td>
<td></td>
<td></td>
</tr>
<tr>
<td>part</td>
<td>Partition</td>
<td>A NP in a partitive construction</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| am4  | Ambiguity about grammatical functions | Occasions where it is hard to decide what grammatical
<table>
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<tr>
<th>Modifiers</th>
<th>mo1</th>
<th>No modifier</th>
<th>No modifier in the NP</th>
</tr>
</thead>
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<tr>
<td>mo2</td>
<td>Pre-modifier</td>
<td>A NP with a modifier before the noun</td>
<td></td>
</tr>
<tr>
<td>mo3</td>
<td>Post-modifier</td>
<td>A NP with a modifier after the noun</td>
<td></td>
</tr>
<tr>
<td>mo4</td>
<td>Pre- and post-modifiers</td>
<td>A NP with a pre-modifier and a post-modifier</td>
<td></td>
</tr>
<tr>
<td>am5</td>
<td>Ambiguity about modifiers</td>
<td>Occasions where it is hard to decide on the modifiers in the NP</td>
<td></td>
</tr>
<tr>
<td>Semantic-pragmatic factors</td>
<td>gen</td>
<td>Generic</td>
<td>A generic context</td>
</tr>
<tr>
<td></td>
<td>am6</td>
<td>Ambiguity about genericity</td>
<td>Occasions where it is hard to decide whether the NP is generic</td>
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<tr>
<td>Semantic specificity</td>
<td>se1</td>
<td>Semantically specific</td>
<td>A semantically specific context</td>
</tr>
<tr>
<td></td>
<td>se2</td>
<td>Semantically non-specific</td>
<td>A semantically non-specific context</td>
</tr>
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<td></td>
<td>am7</td>
<td>Ambiguity about semantic specificity</td>
<td>Occasions where it is hard to decide on semantic specificity</td>
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<td>Pragmatic specificity</td>
<td>pr1</td>
<td>Pragmatically specific</td>
<td>A pragmatically specific context</td>
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<tr>
<td></td>
<td>pr2</td>
<td>Pragmatically non-specific</td>
<td>A pragmatically non-specific context</td>
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<tr>
<td></td>
<td>am8</td>
<td>Ambiguity about pragmatic specificity</td>
<td>Occasions where it is hard to decide on pragmatic specificity</td>
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<td>Definiteness</td>
<td>def1</td>
<td>Definite</td>
<td>A definite context</td>
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<tr>
<td></td>
<td>def2</td>
<td>Indefinite</td>
<td>An indefinite context</td>
</tr>
<tr>
<td></td>
<td>am9</td>
<td>Ambiguity about definiteness</td>
<td>Occasions where it is hard to decide on definiteness</td>
</tr>
<tr>
<td>Chunks</td>
<td>chu1</td>
<td>Native-like chunks</td>
<td>A chunk where <em>a</em> is used correctly</td>
</tr>
<tr>
<td></td>
<td>chu2</td>
<td>Non-native-like chunks</td>
<td>A chunk where either the article is not used correctly or there are other problems with the NP</td>
</tr>
<tr>
<td></td>
<td>am10</td>
<td>Ambiguity about chunkhood</td>
<td>Occasions where it is hard to decide whether the word sequence is a chunk</td>
</tr>
</tbody>
</table>
3.3.3 Coding principles

Intermediate or upper-intermediate L2 learners’ written compositions have grammatical and lexical errors which are hard to code. Some coding principles were developed to address messy items.

1) Ambiguous contexts due to lexical errors were not coded. For example,

134. Developing countries have made a great press during the past few years. (*press may be an error for progress according to the context*)

Despite the fact that we can sometimes infer from the context the words learners originally intended to use, we cannot know for sure. When the word actually used does not fit the context such as press in the above sentence, it is not coded. Although if a word is clearly a misspelling, such as progess for progress, it can be coded.

2) Incomplete sentences were partially coded. For example,

135. They a good health.

This sentence is incomplete, although the NP a good health itself is complete. Such a fragment can only be coded for formal features such as noun countability and concreteness. But without a clear context, whether or not a is correctly supplied cannot be decided and semantic-pragmatic features cannot be coded.

3) Judgment based on preferability

The study coded learners’ use of the indefinite by comparison with target language norms, but target language norms are not totally fixed and there is variance in the norms. Despite the variance, there is a preferred form in the target language norm. The study was interested in whether the learners used the preferred form. To give an example,

136. *These articles have great effect on our country.

Have a great effect and have great effect are both acceptable, but the former is probably the preferred form. The 450-million-word English corpus COCA is consulted to determine the frequency of the NPs of our interest. In COCA, there are 14 tokens of ‘have a great effect’ and 3 tokens of ‘have great effect’. Therefore, the learners’ use of have great effect is coded
as an omission of the indefinite article. If the English corpus cannot give information on a
token of interest, native speakers’ opinions will be sought to help make a decision.

### 3.3.4 Coding procedures

To illustrate how the coding system was applied, I will give a coded example from the corpus.

137. If a person <ob1,co1,ab1,subj,mo1,se2,pr2,def2> wants to improve English, the first
step is to master many words.

In this sentence, *a person* is a correct suppliance of the indefinite article in an obligatory
occasion (coded ‘ob1’); the noun *person* has a count form (coded ‘co1’), and it is a concrete
noun (coded ‘ab1’); the noun phrase *a person* has no modifiers (coded ‘mo1’); it is a subject
(coded ‘subj’); it is a semantically non-specific context (coded ‘se2’), as *a person* does not
have a particular reference; it is also pragmatically non-specific, as the speaker did not intend
the referent to be a topic and did not mention it again in the subsequent discourse; the context
is indefinite (coded ‘def2’).

All the assigned codes for a token were put in brackets immediately after the NP, and the
order of the codes followed the structure of the coding scheme. They were all manually
entered by the researcher in the word document, and later the coded data were fed into the
corpus tool for analysis (to be introduced later).

The researcher coded all the 101 student compositions. A second coder, who is a native
English speaker in New Zealand and also an experienced EFL teacher, coded 32 texts of the
total. First, the researcher and the second coder independently coded 14 texts and compared
notes to discuss disagreement (i.e. the first round of inter-coding as well as the piloting of the
coding system). After all the issues were resolved and small changes were made on the
coding system, the researcher and the second coder independently coded another 18 texts (i.e.
the second round of inter-coding). Percentage of agreement between the researcher and the
second coder will be reported in the results section. After checking reliability of the coding,
the researcher went on to code the remaining 69 texts. In total, about one-third of the texts
were checked by the second coder. To ensure the reliability of the coding, the researcher
consulted the English corpus COCA as well as asked native speakers of English to help
decide on uncertain cases. Finally, for all the article errors that were coded, they were
checked by three native English speakers.
3.3.5 Changes made to the coding system

As mentioned above, the first round of inter-coding also served as the piloting of the coding system. In the pilot, the researcher and the second coder independently coded 14 texts and compared notes afterwards. No major problem was found with the coding system, but some minor changes were made. The coding system presented earlier has already incorporated the changes and here the changes will be briefly reported.

First, in the process of coding, I found that there were some contexts where more than one article was acceptable and the learner just used one of them. These contexts were not described in the previous coding system. I added the code ‘accp1’ to annotate the contexts where the learner used the definite article or zero article but the indefinite article was also acceptable. For example,

138. In terms of students, reading newspaper is the easy way <accp1> to learn the society.

In this sentence, there are two tokens of interest: ‘newspaper’ and ‘the easy way’. The learner either omitted an article or a plural marker for the noun ‘newspaper’, which is irrelevant to the new code. The new code ‘accp1’ was used to code cases like the second noun phrase here. It may be more acceptable to say ‘an easy way’ instead of ‘the easy way’ in the given example, as the learner did not mention any way to learn the society in the previous discourse. The second coder found the use of the definite article equally acceptable, if the learner wanted to emphasize that there was only one easy way to learn the society. Even though the learner had not previously mentioned that there was only one easy way, the reader could interpret this usage in this sense. This is the speaker-oriented approach for viewing definiteness (already introduced in the literature review section), and this explains the usage of the definite article with some first-mention referents. The traditional approach to view definiteness is hearer-oriented. In other words, when the speaker uses the definite article, he or she should make sure that the hearer has some previous knowledge of the referent so that the hearer could single out what is referred to. The choice between a and the is not only a matter of grammar, but sometimes a reflection of the stance or perspective that the speaker takes. Here is another example from the coded compositions.

139. He is the super star [sic] <accp1> of NBA (the National Basketball Association).

In sentence 139, the learner used ‘the superstar’ (referring to Michael Jordan) rather than the more common ‘a superstar’. By using the, the learner was telling the reader two things.
Michael Jordan is a superstar. There is one and only one superstar in NBA. Perhaps many people would prefer to use ‘a superstar’, as they might think there are several superstars who are as great as Michael Jordan in NBA. We may not agree with the stance the learner takes, but we cannot really say that the learner used the wrong article. Perhaps the learner simply misused the rather than intending to express the meaning of uniqueness, but there is no way to tell from the discourse.

It may be interesting to look at these cases where either article is acceptable, so I added the code ‘accp1’ to code the use of the or the zero article where a is also acceptable. Similarly, I also added a code to annotate the use of a where the or the zero article is also acceptable (labelled as ‘accp2’). Here is an example.

140. Many people have an opinion [sic] <accp2> that we can use fresh water according to our need.

In sentence 140, we can either say ‘have an opinion that…’ or ‘have the opinion that…’ There is little difference between the indefinite article and the definite article in this case. Similar to the ‘accp1’ context, the ‘accp2’ context is not an obligatory occasion for the use of a, as either a or the can be supplied. It is also not a non-obligatory occasion for a, as a can be acceptable. These two contexts do not tell how accurately the learners used the indefinite article, but they can shed some light on the variable nature of article usage. Furthermore, if we have a large number of such tokens, we may explore whether learners’ preference for one article over another is associated with any characteristics of the contexts.

Second, the coding of noun countability was problematic. The original coding system distinguished between count nouns and noncount nouns. The former refers to those that denote individual countable entities and the latter refers to those that denote an undifferentiated mass. Such definitions, as often seen in grammar books, are intuitively correct. However, it turned out that they could not adequately account for whether the indefinite article should be used. To code the noun on its own as countable or not is not informative enough. Instead, it is more appropriate to code whether the noun should have a count form or not, in other words, whether the noun can have the indefinite article. Such a distinction between a count form and a non-count form has already been explained in the coding scheme and will not be repeated here.
Third, the code of ‘conjoin’ was deleted. The previous coding system used the code ‘conjoin’ to mark nouns that are linked by coordinating conjunctions like *and*, *but*, and *or*, or by correlative conjunctions like *both… and*, *either…or*, and *neither…nor*. For example,

141. A cat or a dog will be a good companion for kids.

‘A cat or a dog’ as a whole is a NP conjoint that is the subject of the clause. Previously, ‘a cat’ and ‘a dog’ would be each coded as a ‘conjoin’, as they are coordinated constituents of the NP conjoint. The code ‘conjoin’ only describes the internal relation of the two noun phrases, but loses information as to which position of the clause the noun phrase occupies (in this example, the subject position). Therefore, this code was eliminated and coordinated constituents would be coded as the same grammatical function as the entire conjoint. Here ‘a cat’ and ‘a dog’ would be both coded as subject.

To summarize the changes made in the coding system, two new codes were added to further categorize the contexts where articles are used, the coding of noun countability was revised, and the code of ‘conjoin’ was deleted.

3.3.6 Corpus tool

When all the coding was completed, the study used a corpus tool to compute the number of tokens falling into each category. For this purpose, the study used AntConc 3.3.5 (2012), a freeware concordance program developed by Laurence Anthony. This corpus tool enabled the researcher to search for contexts by a given code and to quantify the data by categories. I will briefly explain how to use AntConc for the current study.

If I want to search for NPs containing a concrete noun, I will put ‘ab1’ (i.e. the code for concrete nouns) in the search term box, the program will show the total number of concordance lines (i.e. concordance hits) that meet the requirement, and also list all the concordance lines containing ‘ab1’, with the search term highlighted, which will facilitate close examination of contexts of the same type.

I can also search for contexts by multiple codes, which is useful to explore the relationship between the use of the indefinite article and other coding features. For example, if I want to know how many nouns are abstract nouns in all the contexts where the learner omitted the indefinite article, I can do a context search in the ‘advanced search’ box in AntConc. Enter the search term ‘ob2’ (the code representing omission in obligatory occasions), and enter ‘ab2’
(the code for abstract nouns) as the context word and set the ‘Context Horizon’ to ‘from 0 to 2R’ indicating a span of words starting from the search term itself to the second position on the right of the search term. As mentioned earlier, the codes for each token are in the same order as listed by the structure of the coding system. The code for the suppliance of the indefinite article is always listed first in the brackets, and the code for the concreteness/abstractness of nouns always comes third, which explains why the fixed order of codes allows us to search using context words to extract the contexts that contain several features at the same time. When all the tokens in each coding category were counted by AntConc, descriptive statistics for each category could be computed.

3.3.7 Analysis

Three types of analyses were conducted on the corpus data. First, the general accuracy of the use of the indefinite article was computed. The rate of suppliance in obligatory contexts (SOC) and the rate of target-like use (TLU) analyses were used to compute the general accuracy. Second, the accuracy of the indefinite article in different groups defined by a certain factor (e.g. abstractness/concreteness of nouns) was compared. The Z-test was used to compare the proportions of correct suppliance of a under the different features of the same factor. Fisher’s Exact test (Fisher, 1922) was used to explore the relationship between error types and the different features of a certain factor. Third, the factors under investigation were examined together to find out the most problematic context (i.e. the context that incurred the most errors). The detailed analyses are reported in the results chapter for the corpus study.

3.4 Elicitation study

This study investigated how the different syntactic, semantic and pragmatic contexts are related to learners’ accuracy of the indefinite article, addressing research questions 1, 3 (3.1), 4 and 5. The study focuses on the Chinese students’ knowledge of the indefinite article, and whether learners of different proficiency will exhibit different patterns in terms of article usage. The population of interest not only included university-level students but also middle school students. A grammaticality judgement test and an article choice test were used to elicit participants’ knowledge of the indefinite article in the different syntactic and semantic-pragmatic contexts. I will first introduce the pilot study and the changes resulting from the pilot study and then introduce the participants, instruments and procedures of the main study.
3.4.1 Pilot study

The purpose of the pilot study was to test the validity and reliability of the instruments as well as to evaluate the feasibility of delivering the test online. The pilot study involved Chinese non-English major undergraduates and English native speakers as a control group.

3.4.1.1 Chinese participants

The pilot study took place at a university in Shanghai, China. This university is one of the oldest and most select universities in China, which suggests that students admitted into this university had obtained very high scores in their national college entrance examination. A total of 100 students took part in the study, but data of 30 students was lost due to a technical glitch. As a result, the pilot study only had data for 70 students, including 46 first-year students and 24 third-year students. The participants were majoring in different subjects in arts, science, business or medicine, but not English, as the study targeted non-English major students.

The age of the students ranged from 18 to 22, the average age of the first-year and third-year students being 18.36 and 20.45 respectively. The age of onset of English learning for both groups of students was roughly the same, that is, around 10 years old. The third-year students had two more years of English learning experience. Besides, none of the first-year participants had any experience of staying in an English-speaking country; while six third-year participants had some overseas experience, ranging from 1 month to 12 months.

At the time of the pilot study, first-year students were spending a bit more time studying or using English outside the classroom than third-year students, measured by their reported average studying hours per week. It is not surprising given that most third-year students finished their compulsory EFL courses in their first and second years and were spending more time on the major-related courses in the third year rather than on English.

The participants were recruited on a purely voluntary basis. Recruiting advertisements were circulated in EFL courses or language-related courses with the help of course instructors, as well as posted on the university BBS (Bulletin Board System).

The first-year participants in this pilot study all came from courses teaching College English II, a near-average level of English proficiency compared to other students in the same university, as defined by the host university. Third-year volunteers were recruited from
various language-related courses such as general linguistics, English literature, English newspaper reading, English argumentative writing and so on.

3.4.1.2 Control participants

Apart from the Chinese participants, 10 native speakers of English (3 females and 7 males) took part in the pilot study. The English-speaking participants were recruited through advertisements and by word of mouth from a major university in New Zealand and from a not-for-profit New Zealand-based organization teaching English to refugees and migrants. Among the ten native speakers (NSs), three were PhD students (including one who was doing research in sociolinguistics), five were English teachers in New Zealand, and the remaining three were in a profession unrelated to languages. The age of the NSs ranged from 28 to 70, averaged out at 43. Seven out of the ten NSs were New Zealanders, two were Canadians and one was an American.

3.4.1.3 Procedures

In the pilot study, the article choice test and the GJT were both computer-delivered and only required the click of a mouse, while the questionnaire was on paper and needed to be filled by hand. Participants first completed the article choice test and then the GJT on the screen. When the computer test was over, they filled in the language background questionnaire. The whole process lasted about 35 to 50 minutes depending on the individual.

The participants were instructed that they could take as long as they wanted to do the tests, but they were not allowed to change once they had answered a question, and both tasks were programmed in a way that made a change of mind impossible.

The test was Internet-based. All the information the participants keyed in on the computer was instantaneously stored on a private server hired by the researcher. Meanwhile, the time the participants spent doing the task (including the response time in article choice for each item and the total time for the entire task) was recorded, without the participants’ awareness, in the database on the server.

3.4.1.4 Reliability of the instruments

To examine the internal reliability of the article choice test and GJT, Cronbach alpha reliability coefficients were computed. The reliability coefficient for the article choice test
was .448, which was far below the desirable .7, a generally acceptable threshold (Field, 2013, p. 709; Larson-Hall, 2010, p. 171). The low reliability may be attributed to two reasons: 1. The sample was relatively homogenous and displayed little variance, as indicated by the general high accuracy. 2. The sample size was quite small.

There are at least four basic ways to optimize the coefficient alpha (Salkind, 2010): 1. to use a heterogeneous sample, as a homogenous sample with reduced variability will reduce the coefficient alpha; 2. to increase the sample size which is also more likely to produce a larger variance; 3. to increase the number of items, and 4. to select ‘good items’ and remove those items that reduce the internal consistency reliability coefficient. The main study took into account these factors that could reduce the coefficient alpha and made changes accordingly, which will be explained later.

The GJT had an acceptable alpha of .763, which was much better than the article choice test, probably due to the fact that learners’ performance in the GJT showed more variation, because this test was a little more difficult for the participants than the article choice test, as can be seen by the accuracy rate.

3.4.1.5 Revisions made after the pilot study

The purpose of the pilot study was to test both the content and the format of the instruments. This section will summarize the problems encountered in the pilot study and changes made in the main study to accommodate the issues.

Sample selection

The pilot study sampled first- and third-year students from a prestigious university in China. The pilot study results showed that the instruments used proved relatively easy for the pilot population. The general accuracy rate in the use of the indefinite article was very high. Besides, much of the data was very skewed and could only be analyzed by nonparametric statistical tests. It was deemed more meaningful to sample students from a university that is considered ‘average’ in terms of university rankings in China. The main study, accordingly, was conducted in a less prestigious university in Shanghai, with a view to sampling a university that is representative of a wider population of Chinese students.

Instruments
On the basis of the responses from the ten native speaker participants in the pilot study, three items in the GJT test were replaced or revised and two items in the article choice test were replaced. The rewritten items were trialled on a small number of native speakers of English before they were incorporated into the main study materials. Also, the GJT test in the main study asked participants to provide corrections if they judged the underlined noun phrase to be incorrect, in addition to the judgment of grammaticality required only by the pilot study. This measure had a two-fold purpose: 1. The correction is further evidence of participants’ competence in article usage, as it shows how accurately learners could supply the articles. 2. The corrections provided data for the analysis of relationship between error types and different contexts.

Format of the tests

The main study opted for a pen-and-paper format for the delivery of the tests rather than the web-based computerized format used in the pilot study. This change was made due to a number of reasons: 1. The purpose of the study is not to compare intuitive knowledge and metalinguistic knowledge, so issues like participants’ potential change of response do not figure as important. Therefore a computerized test that does not allow a change of answers is not essential. 2. The administration of tests would be logistically restrained as well-equipped labs would have to be booked in order for computer-based tests to take place. 3. Data safety is less guaranteed with computer-delivered tests than with the pen-and-paper format.

To sum up, the main study mostly altered the way the tests were delivered, from computer-based to pen-and-paper, and changed some particular items in the tests. I will introduce the participants, the instruments and the procedures of the main study below.

3.4.2 Participants

This study involved three groups of participants: university students, middle school students and native speakers of English. Native English speakers served as a control group to validate the instruments.

3.4.2.1 Chinese university students

A total of 112 second-year undergraduate students from a university in Shanghai took part in the study (see Appendix B for participant information sheet in English and in Chinese). All of them did both the GJT and the article choice test, and 36 students of them did the same tests
again after a week. The students were recruited on a voluntary basis from eight English classes and most of them were placed in English classes targeting students of an average level of English proficiency on the basis of their English placement test immediately after they entered the university. They were all non-English major students and their majors were assorted, but the majority of them came from the Faculty of Engineering.

Of 111 valid respondents, 64 (57.3%) respondents were males and 47 (42.3%) respondents were females. The participants’ age ranged from 17-22, with a mean of 20 years. Their average onset of English learning was from 9.51 years (corresponding to a time between Year 3 and Year 4 of the primary school in China), the earliest starting from 1 year and the latest from 14 years. According to the language background questionnaire, they spent an average of 1.94 hours of learning English in class per week, and about 3 hours learning or using English after-class per week (refer to Table 10 for detailed descriptive statistics).

All except two of the participants were native speakers of Mandarin, and the other two participants spoke a language of a minority ethnic group in China, but they reported native-like proficiency in Mandarin. None of the participants graduated from a high school where English was a medium of instruction. There was one student who studied German in addition to English in his high school. Only one student had experience in an English-speaking country, and her length of stay was less than two months.

| Table 10 Language background of university participants¹ |
|---------------------------------|---------|---------|---------|---------|---------|---------|---------|
|                                | N      | Min.    | Max.    | Mean    | SE      | SD      |
| Age                            | 112    | 17      | 22      | 20.116  | .090    | .947    |
| Age of onset of English learning| 112    | 1       | 14      | 9.510   | .233    | 2.464   |
| Years of English learning      | 112    | 6       | 17      | 10.660  | .214    | 2.264   |
| Average time spent on learning | 112    | 0       | 6       | 1.940   | .069    | .732    |
| English in class (hours/week)  |        |         |         |         |         |         |
| Average time spent learning    | 110    | 0       | 20      | 2.996   | .321    | 3.372   |
| using English after-class      |        |         |         |         |         |         |
| (hours/week)                   |        |         |         |         |         |         |

Apart from the information reported above, learners were asked in the language background questionnaire to evaluate their own overall English language ability and six aspects of language ability (i.e. reading, writing, speaking, listening, grammar and vocabulary) on a five-point scale from ‘very weak to very strong’. The self-rating scores were calculated after converting the scale from ‘very weak to very strong’ to numbers ranging from ‘1-5’, which
means that the lower the score, the weaker the ability. Table 11 displays the descriptive statistics for the students’ self-assessment of their English ability. The average rating of all the students for overall English ability was 2.64, below 3, the mid-point on the scale which represents an average ability. Students’ ratings of the six aspects of language ability were all somewhere between 2 (‘weak’) and 3 (‘average’), the highest being reading 2.79 and the lowest being 2.29 for listening. Their self-assessed grammar ability was 2.61, following reading as the second highest rating among the six aspects of English ability.

Table 11 University students’ self-assessment of their own English ability

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Min.</th>
<th>Max.</th>
<th>Mean</th>
<th>SE</th>
<th>SD</th>
<th>Skewness</th>
<th>SES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall ability</td>
<td>112</td>
<td>1</td>
<td>5</td>
<td>2.64</td>
<td>.063</td>
<td>.669</td>
<td>-.356</td>
<td>.228</td>
</tr>
<tr>
<td>Reading</td>
<td>112</td>
<td>1</td>
<td>5</td>
<td>2.79</td>
<td>.079</td>
<td>.832</td>
<td>-.247</td>
<td>.228</td>
</tr>
<tr>
<td>Listening</td>
<td>112</td>
<td>1</td>
<td>5</td>
<td>2.29</td>
<td>.076</td>
<td>.801</td>
<td>.163</td>
<td>.228</td>
</tr>
<tr>
<td>Writing</td>
<td>111</td>
<td>1</td>
<td>5</td>
<td>2.43</td>
<td>.070</td>
<td>.734</td>
<td>-.183</td>
<td>.229</td>
</tr>
<tr>
<td>Speaking</td>
<td>111</td>
<td>1</td>
<td>5</td>
<td>2.35</td>
<td>.073</td>
<td>.770</td>
<td>.270</td>
<td>.229</td>
</tr>
<tr>
<td>Grammar</td>
<td>111</td>
<td>1</td>
<td>5</td>
<td>2.61</td>
<td>.077</td>
<td>.811</td>
<td>-.008</td>
<td>.229</td>
</tr>
<tr>
<td>Vocabulary</td>
<td>111</td>
<td>1</td>
<td>5</td>
<td>2.52</td>
<td>.076</td>
<td>.796</td>
<td>.200</td>
<td>.229</td>
</tr>
</tbody>
</table>

A proportion of the students reported their scores for the English proficiency tests they had sat, such as CET4, CET6, TOEFL and IELTS (refer to Table 12). More than half of the student participants had already taken CET4, but hardly any students had sat other English tests. Accordingly, only the CET4 could be used as an indicator of their English proficiency. CET4 (College English Test Band 4) is China’s widely recognized English as a foreign language test for non-English major undergraduate students. The maximum possible score of CET4 is 710 and the passing score is 425. Among the 112 participants, 83 (74%) students had a CET4 score, with a mean of 483.58 (roughly corresponding to the 40% percentile according to the CET4 grading system). The students’ self-rating and the proficiency test score both indicated that the group of second-year university students sampled in this study had an about average or slightly below average English ability.

Table 12 University students’ English proficiency test scores

<table>
<thead>
<tr>
<th></th>
<th>n</th>
<th>Min.</th>
<th>Max.</th>
<th>Mean</th>
<th>SD</th>
<th>Skewness</th>
<th>SES</th>
</tr>
</thead>
<tbody>
<tr>
<td>CET4</td>
<td>83</td>
<td>270</td>
<td>591</td>
<td>483.58</td>
<td>57.746</td>
<td>-.670</td>
<td>.264</td>
</tr>
<tr>
<td>CET6</td>
<td>1</td>
<td>320</td>
<td>320</td>
<td>320.00</td>
<td>.</td>
<td>.</td>
<td>.</td>
</tr>
<tr>
<td>TOEFL</td>
<td>2</td>
<td>80</td>
<td>90</td>
<td>85.00</td>
<td>7.071</td>
<td>.</td>
<td>.</td>
</tr>
<tr>
<td>IELTS</td>
<td>2</td>
<td>7</td>
<td>7</td>
<td>7</td>
<td>.000</td>
<td>.</td>
<td>.</td>
</tr>
</tbody>
</table>
3.4.2.2 Chinese middle school students

A total of 118 students from a middle-ranking intermediate school in Shanghai took part in the study. All of them did the GJT and the article choice test, and 37 students of them took the same tests again after a week. They spent 25-40 minutes in the first round of tests and 15-25 minutes in the second round of tests.

The students were all in their second-year of secondary education (or to put it another way, in their seventh year of the nine-year compulsory education implemented in China). They were recruited on a voluntary basis and were fully informed of the object and content of the study. The tests occurred in their leisure hours in their usual classrooms, not affecting their normal curriculum.

All the participants were native speakers of Chinese. The medium of instruction in the school was Mandarin Chinese in courses other than English where teachers taught in English. The intermediate school where the students studied had eight classes for each grade, and half of the eight classes had students of a better academic record than the remaining four classes, as was decided by the placement policy of the school. The study recruited students from three of the academically advanced classes, on the grounds that the tests were more suitable for their English level.

The participants’ ages ranged from 12-15, with an average of 13 years. There were 49 male students (41.5%) and 68 female students (57.6%) of the 117 valid respondents. Their average onset of English learning was 5.71 years (which is prior to their formal primary education beginning at 6 or 7 years old), the earliest starting at 4 years old and the latest starting when 8 years old. The number of years they spent learning English was 7.76 on average. Five of the participants had experience in an English-speaking country, but none of them had spent more than two months overseas. According to the subject curriculum, the students’ English course was made up of six 40-minute sessions each week. In other words, the students spent 4 hours per week learning English at school. In addition, they spent about 2.68 hours learning or using English after-class each week (see Table 13 for detailed descriptive statistics).
Table 13 Language background of middle school participants

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Min.</th>
<th>Max.</th>
<th>Mean</th>
<th>SE</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>117</td>
<td>12</td>
<td>15</td>
<td>13.363</td>
<td>.055</td>
<td>.593</td>
</tr>
<tr>
<td>Age of onset of English learning</td>
<td>117</td>
<td>4</td>
<td>8</td>
<td>5.710</td>
<td>.106</td>
<td>1.145</td>
</tr>
<tr>
<td>Years of English learning</td>
<td>117</td>
<td>6</td>
<td>10</td>
<td>7.760</td>
<td>.110</td>
<td>1.186</td>
</tr>
<tr>
<td>Average time spent learning or using English after-class (hours/week)</td>
<td>114</td>
<td>0</td>
<td>8</td>
<td>2.680</td>
<td>.155</td>
<td>1.655</td>
</tr>
</tbody>
</table>

According to the students’ self-assessment of their language abilities in the background questionnaire, their average rating of their overall English ability was 3.10, around the middle point of the five-point scale ranging from ‘very weak to very strong’. Among the six aspects of language ability mentioned in the questionnaire, students’ rating of their listening was the highest, i.e. 3.18, followed by grammar 3.03, and the lowest rating was in writing, i.e. 2.81, (refer to Table 14 for all the rating scores). The students’ self-assessment indicated that the middle school students sampled in this study regarded themselves to be of an average English ability.

Table 14 Middle school students’ self-assessment of their own English ability

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Min.</th>
<th>Max.</th>
<th>Mean</th>
<th>SE</th>
<th>SD</th>
<th>Skewness</th>
<th>SES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall ability</td>
<td>117</td>
<td>1</td>
<td>4</td>
<td>3.10</td>
<td>.051</td>
<td>.547</td>
<td>-.258</td>
<td>.224</td>
</tr>
<tr>
<td>Reading</td>
<td>117</td>
<td>1</td>
<td>5</td>
<td>2.99</td>
<td>.054</td>
<td>.580</td>
<td>-.270</td>
<td>.224</td>
</tr>
<tr>
<td>Listening</td>
<td>117</td>
<td>1</td>
<td>5</td>
<td>3.18</td>
<td>.059</td>
<td>.638</td>
<td>.030</td>
<td>.224</td>
</tr>
<tr>
<td>Writing</td>
<td>117</td>
<td>1</td>
<td>4</td>
<td>2.81</td>
<td>.048</td>
<td>.524</td>
<td>-.929</td>
<td>.224</td>
</tr>
<tr>
<td>Speaking</td>
<td>117</td>
<td>1</td>
<td>4</td>
<td>2.97</td>
<td>.058</td>
<td>.622</td>
<td>-.638</td>
<td>.224</td>
</tr>
<tr>
<td>Grammar</td>
<td>117</td>
<td>1</td>
<td>5</td>
<td>3.03</td>
<td>.054</td>
<td>.586</td>
<td>.518</td>
<td>.224</td>
</tr>
<tr>
<td>Vocabulary</td>
<td>117</td>
<td>1</td>
<td>5</td>
<td>2.93</td>
<td>.060</td>
<td>.653</td>
<td>.069</td>
<td>.224</td>
</tr>
</tbody>
</table>

3.4.2.3 Control participants

Apart from the Chinese EFL participants, 25 native speakers of English (13 males and 12 females) took part in the study. The English-speaking volunteers were recruited from a major university in New Zealand through advertisements. The majority (i.e. 19 out of the 25) of the English native speakers (NSs) were undergraduate students, and the remaining participants were two English language teachers, two PhD students, one manager and one solicitor. The undergraduate students came from different faculties including arts, science and engineering.
They all spoke English as their first language, but they were not from the same English-speaking country. Eighteen (72%) of them were New Zealanders, three were from the UK, two were from the USA, one from South Africa and one from South Korea. The age of the NSs ranged from 18 to 70, averaging out at 30.8, but nineteen of them were aged below 27.5.

3.4.3 Instruments

The instruments used in the study included a grammaticality judgment test (GJT), an article choice test, and a language background questionnaire. Native speakers of English were only asked to do the two tests. See Appendix C for the English version of the two tests and Appendix D for the Chinese version.

3.4.3.1 Questionnaire

A questionnaire was used to obtain basic demographic and language background information from the participants. The questions asked served three purposes: 1. to check the eligibility of the participants by their year of study and L1 language; 2. to provide information about the participants’ language learning experience and their proficiency scores if they had test scores of this kind, and 3. to ask the participants to assess their own English ability, to be used as an informal index of their proficiency. The questionnaire was in Chinese and was only administered to the L2 learners (see Appendix E).

3.4.3.2 The grammaticality judgment test

The grammaticality judgment test was used for several purposes: 1. to survey learners’ knowledge of the indefinite article in different semantic contexts, as a complement to the article choice test to be introduced later; 2. to explore whether learners’ use of the indefinite article would be affected by the syntactic position of the noun phrase in a sentence (i.e. subject, object and complement), and 3. to contribute to the combined effort, together with the article choice test, to answer how accurate Chinese L2 learners’ knowledge of the indefinite article is and whether learners of different levels differ in article usage. To summarize, this instrument served the purpose of answering research questions 1, 3 (3.1) and 4.
Format of GJT

The GJT consisted of 52 items. Each item was one or two sentences long containing an underlined noun phrase. The underlined noun phrase could be in one of the three forms: 1. the indefinite article followed by a noun; 2. the definite article followed by a noun, and 3. zero article followed by a noun. All the nouns that occurred in the test were countable nouns in the singular form. The noun phrase in each item could be in the subject, object or complement position of the sentence.

The participants were instructed to read the sentences and complete three questions for each item. First, the participants were asked to judge whether the underlined part was grammatically correct. Second, if the participants regarded the underlined part to be incorrect, they were asked to provide a correction. Third, the participants needed to rate how certain they were of their previous grammaticality judgement. They could choose from ‘Not certain’, ‘Fairly certain’ or ‘Very certain’.

The participants read examples and did two practice items to familiarize themselves with the procedures before the test began officially, and rated how difficult the test was after the test proper ended. The Chinese version of the test (with instructions translated into Chinese and translations provided for difficult words) was administered to L2 learners and the English version to the native speakers of English.

Item types

The items in the GJT were designed according to different combinations of semantic features (i.e. specificity and genericity) and syntactic positions (i.e. subject, object and complement).

There were three broad semantic context types, i.e. [- semantically specific, - definite], [+semantically specific, - definite] and [+generic] contexts. This test did not contain [+definite] contexts, as they are not the obligatory occasions for the use of the indefinite article (the same reason given for the article choice test).

Noun phrases in the subject position and in the object position were counter-balanced in both conditions of specificity. In the non-generic contexts (i.e. [- semantically specific, - definite] and [+semantically specific, - definite]), singular indefinites can fit both the subject and the object position. By contrast, ‘generic a’ only appears in the subject position, as discussed in the literature review chapter. Accordingly, the [+generic] contexts in the GJT all had singular
noun phrases in the subject position. Apart from the subject and object positions, the test also had noun phrases in the complement position. It should be noted that post-copular singular nouns are generally agreed to be non-specific (or ‘non-referring’) (as mentioned in the literature review), which explains why only the [-semantically specific, -definite] context had noun phrases in the complement position in the GJT.

For the indefinite contexts, there were an equal number of grammatical and ungrammatical items. All the items targeting the indefinite article were grammatical and each grammatical item was paired with an ungrammatical item containing either the definite article or zero article. For the generic contexts, items containing the indefinite article and the definite article were both grammatical while the items containing zero article before singular countable nouns were ungrammatical. Table 15 provides a list of all the context types and the number of items in the GJT.

The properties of nouns in both the GJT and the article choice test were controlled for. All the target items were singular, countable, and concrete nouns. As abstract nouns often have a dual countability status, learners may find it difficult to identify the countability of abstract nouns. The study made countability of the target items straightforward to minimize the potential effect it can have on the accuracy, as the factors of interest were syntactic positions and semantic contexts.

<table>
<thead>
<tr>
<th>Context</th>
<th>Sem sp</th>
<th>Position of NP</th>
<th>Target article</th>
<th>Grammaticality</th>
<th>N of items</th>
</tr>
</thead>
<tbody>
<tr>
<td>generic</td>
<td>NA</td>
<td>subject</td>
<td>a</td>
<td>G</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>n = 12</td>
<td>the</td>
<td>UG</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>zero</td>
<td>UG</td>
<td>4</td>
</tr>
<tr>
<td>non-generic (indefinite)</td>
<td>Semantically specific (+sem sp)</td>
<td>object</td>
<td>n = 8</td>
<td>a</td>
<td>G</td>
</tr>
<tr>
<td></td>
<td></td>
<td>set</td>
<td>the</td>
<td>UG</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>zero</td>
<td>UG</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Semantically non-specific (-sem sp)</td>
<td>subject</td>
<td>n = 8</td>
<td>a</td>
<td>G</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>the</td>
<td>UG</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>zero</td>
<td>UG</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>complement</td>
<td>a</td>
<td>G</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>n = 8</td>
<td>the</td>
<td>UG</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>zero</td>
<td>UG</td>
<td>2</td>
</tr>
</tbody>
</table>

Table 15 Context types in the GJT
I will give an example of each context below. Please see Appendix F for a complete list of items classified by context type.

Examples:

(1) [- def, - sem sp], target a, in object position

142. If you want to book a hotel in Hangzhou, I can recommend you some good places to stay.

(2) [- def, - sem sp], target a, in subject position

143. A girl will be chosen to perform on stage next month. I don’t know which girl.

(3) [- def, +sem sp], target a, in object position

144. Peter has read a book. I don’t know which book he has read.

(4) [- def, +sem sp], target a, in subject position

145. A lawyer was hired to help him. Guess who the lawyer is.

(5) [+gen], target a, in subject position

146. A hammer is very useful in modern life.

(6) [- def, - sem sp], target a, in complement position

147. He studied law at school. Then he became a lawyer.

To sum up, the GJT not only directly tested participants’ judgement of the indefinite article in obligatory contexts requiring a, but also asked participants to evaluate the overuse of the and the omission of articles where a was obligatory.

3.4.3.3 The article choice test

This instrument was primarily used to answer research question 5 and its sub-questions, that is, to explore whether the semantic-pragmatic notion of ‘specificity’ is related to learners’ (mis)use of the indefinite article. This instrument was also used to help answer research question 1, as learners’ choice of articles in different contexts will inform us of how accurately they use the indefinite article and whether learners of different educational levels perform differently in their use of the indefinite article.
**Format of the article choice test**

This test was adapted from Ionin (2003) and Ionin et al. (2004), with substantial changes made to the underlying concepts but not many changes in format. The test consisted of 48 short English conversations between two interlocutors. Each conversation had a brief heading specifying the context where the conversation took place. In each of the conversations, there was a sentence missing an article. The participants were instructed to read the conversation and complete two questions for each item. First, the participants were asked to choose the most appropriate article to fill in the blank. There were three possible choices: *a/an, the* or zero. Second, the participants needed to rate how certain they were of their choice of articles. They could choose from ‘Not certain’, ‘Fairly certain’ or ‘Very certain’. This question was in the same format as in the GJT, measuring certainty of response. After the participants had finished the test proper, they were asked to rate how difficult they found the task. Also for the article choice test, before the task began officially, participants were given time to read the instructions that contained examples and to do one practice item.

The article choice test has an English version and a corresponding Chinese version. In the Chinese version, task instructions were given in Chinese for ease of understanding. Also, some words that L2 learners might find difficult had a Chinese translation immediately following the English word in the conversation.

**Underlying semantic-pragmatic concepts**

The article choice test included contexts with different combinations of three semantic-pragmatic factors, i.e. semantic specificity, pragmatic specificity and ESK. The definitions of semantic specificity and pragmatic specificity are the same as in the corpus study, so they are not repeated here. The definition of ESK is provided below.

The notion of ‘explicitly stated knowledge of the referent’ (ESK) came from Trenkic (2008). A [+ESK] condition is a context where the speaker has explicitly confirmed knowledge of the referent. A [-ESK] condition is a context where the speaker has explicitly denied familiarity of the referent. It follows naturally that ESK (whether knowledge of the referent is confirmed or denied) is dependent on pragmatic specificity. In other words, ESK is a way to realize topic continuity. Even when the speaker denies knowledge of the referent, the denial itself indicates the speaker’s intention to continue the topic, hence [+pragmatically specific]. On
the other hand, the condition of ESK does not exist in a [-pragmatically specific] context, as the referent is not further discussed.

**Item types**

Based on the above definitions of the three semantic-pragmatic concepts, the article choice test contained every possible combination of them. There were 32 main items in the test, evenly distributed between the two conditions of semantic specificity (abbreviated as ‘sem sp’ below). Each condition of semantic specificity cut across pragmatic specificity (abbreviated as ‘prag sp’ below). Each [+prag sp] condition contained an equal number of [+ESK] and [-ESK] conditions, while a [-prag sp] context does not license ESK as mentioned above (the symbol ‘ØESK’ was used to represent the absence of ESK).

The main items were all in the indefinite context as the present study was only interested in the potential effects of specificity on learners’ (mis)use of articles in indefinite contexts. The task also included 16 items targeting *the*, but only for the purpose of distraction. Out of the 16 items in the definite contexts, there were 12 items that were [+sem sp] covering both [+prag sp] and [-prag sp]. The [+prag sp] contexts were also divided into [+ESK] and [-ESK], resembling the distribution of semantic conditions in the indefinite contexts. The remaining 4 items in the definite context were universal definites (e.g. *the sun, the sky*) and proper nouns. Altogether, the task contained 32 indefinite contexts (as main items) and 16 definite contexts (as distractors). The number of distractors was half the number of main items. As the main items all targeted the use of the indefinite article, it was necessary that a large number of distractors targeting the use of the definite article should be included. Only learners’ responses in the indefinite contexts were analysed. Below is a list of context types and numbers of items in the test (see Table 16).

**Table 16 Context types and numbers in the article choice test**

<table>
<thead>
<tr>
<th>Definiteness</th>
<th>Semantic specificity</th>
<th>Pragmatic specificity</th>
<th>Explicitly stated knowledge</th>
<th>N of items</th>
<th>Target article</th>
</tr>
</thead>
<tbody>
<tr>
<td>- def</td>
<td>+sem sp</td>
<td>+prag sp</td>
<td>+ESK</td>
<td>4</td>
<td>a</td>
</tr>
<tr>
<td>(n = 32)</td>
<td>(n = 16)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>+prag sp</td>
<td>- ESK</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- prag sp</td>
<td>ØESK</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- sem sp</td>
<td>+prag sp</td>
<td>+ESK</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>(n = 16)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>+prag sp</td>
<td>- ESK</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- prag sp</td>
<td>ØESK</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>+def</td>
<td>+sem sp</td>
<td>+prag sp</td>
<td>+ESK</td>
<td>4</td>
<td>the</td>
</tr>
<tr>
<td>distractors</td>
<td>(n = 12)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>+prag sp</td>
<td>- ESK</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- prag sp</td>
<td>ØESK</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>
As can be seen in the above context table, there were altogether six context types in the 32 main items. I will give an example of each context type below. I will not give examples of distractors due to space constraints (see Appendix G for a complete list of all items by category).

Examples:

(1) [+sem sp, +prag sp, +ESK]
148. Between friends
   Mary: What did you do last Sunday?
   Paul: I cleaned my apartment in the morning. After lunch I read (a, the, --) book. It was so interesting that I kept on reading for the whole afternoon and whole night. I think you will love it. It’s called Wolf Hall. It has won a lot of prizes.

(2) [+sem sp, +prag sp, - ESK]
149. At a university
   Professor Clark: I’m looking for Professor Anne Peterson.
   Secretary: I’m afraid she is busy. She is meeting with (a, the, --) student, but I don’t know who it is. I guess it’s one of her postgraduate students.

(3) [+sem sp, -prag sp, ØESK]
150. Between friends
   Cindy: Did you have a good weekend?
   John: Not bad. I watched (a, the, --) movie on Saturday. And I finished my homework on Sunday. How about you?
   Cindy: I did a lot of shopping.

(4) [-sem sp, +prag sp, +ESK]
151. Between friends
   Peter: What kind of cars do you want to buy?
   Paul: I want to buy (a, the, --) classic car. It must be fast and safe. I know it would probably be expensive, but I am willing to pay for it.
(5) [-sem sp, +prag sp, - ESK]
152. Between friends

Jane: Do you like cats?
Oscar: So so, but my sister likes cats very much. She wants to buy (a, the, --) cat. I
don’t know what it will look like. Perhaps she doesn’t know either before she sees it.

(6) [-sem sp, - prag sp, ØESK]
153. At a birthday party

Mother: Happy birthday! What’s your birthday wish?
Boy: I have a lot of wishes. I want to have (a, the, --) pencil box. I want to travel by
plane. I wish I could go to Egypt and ride camels. Not this year, but perhaps in near
future.
Mother: I am sure you will.

It is worth noting that pragmatic specificity cuts across semantic specificity. A semantically
non-specific context can also be pragmatically specific, because pragmatic specificity is in
essence discourse salience as shown in the continuation of the topic. A speaker can continue
to talk about a thing that has not yet come into existence as a topic after first mentioning it,
regardless of its ontological status (i.e. semantic specificity). For a semantically non-specific
referent, if the speaker continues to talk about it by providing confirmed knowledge of it, it is
is a [-sem sp, +prag sp, +ESK] context; if the speaker continues to talk about it by denying
familiarity of it, it is a [-sem sp, +prag sp, -ESK] context. Both [+ESK] and [-ESK] are ways
to realize topic continuity, so they are only possible in a [+prag sp] context.

3.4.4 Procedures

The Chinese participants were informed about the study through advertisements circulated
with the help of their English course instructors. Students participated in the study on a
voluntary basis. The data collection took place in their normal classrooms at arranged leisure
hours, and therefore did not interrupt their regular classes. The students’ participation was
anonymous and confidential. They were informed of their rights to quit in the middle of the
test or to withdraw their data if they wanted.

The test was a pen-and-paper test. In the case of the university students, the researcher gave
out the test papers and explained the procedures to the participants at the beginning of the
test. The participants were seated separately or adjacentl y, depending on the availability of space. In the case of the middle school students, the researcher was not present at the time of the test. The students’ normal English class teachers explained the procedures and invigilated the test. Such an arrangement was made for logistical reasons. The middle school participants were seated in paired desks in lines at the time of the test, which was also the normal seating plan of their classroom. In both cases, there was no time pressure.

The participants first filled in the language background questionnaire, and then did the GJT and the article choice test. The questionnaire was presented first in order to make sure that the students did not forget to do it. The whole process lasted about 20 to 45 minutes depending on the individual.

The control participants were recruited through advertisements and word of mouth. They did the tests individually at arranged times in a quiet study area. Both Chinese participants and control participants received a small gift or a supermarket voucher as a token of gratitude for their participation in the study.

3.4.5 Analysis

Detailed methods of analysis are reported in the two results chapters for the elicitation study. Here I will just briefly introduce the analyses used. First, different statistical tests were used to check the reliability of the two test instruments. Cronbach’s alpha and Spearman-Brown split-half reliability estimates were used to evaluate the internal reliability of the tests. Pearson’s correlation (or Spearman’s rho) coefficient and the binomial test were used to estimate the external reliability of the tests. Second, the descriptive statistics for the overall accuracy as well as the accuracy in each context of interest were computed. Third, to compare the accuracy in different contexts (e.g. NPs in different syntactic positions), the Wilcoxon signed-rank test or the repeated measures ANOVA was used. For comparisons between two groups, the Wilcoxon signed-rank test (i.e. the non-parametric counterpart of paired samples t-test) was used. For comparisons between more than two groups defined by a single factor, a one-way repeated measures ANOVA was used. In the case of a factorial design (e.g. subject and object crossed over by specificity and non-specificity), the two-way repeated measures ANOVA was used to test the potential interaction between the two factors. Detailed explanations of the type of statistical tests used and the rationale behind the tests can be found in the results chapters.
Notes

1 The descriptive statistics for the language background questionnaire relate to the whole sample of 112 students who sat the tests. But the valid sample varies in the later analyses.
Chapter 4 Results of Corpus Study

4.1 Introduction

This chapter reports the results from analysing the student compositions from the CLEC corpus. The study selected 101 student compositions from CLEC, each composition with a word count of between 150 and 350 words, totalling about 20,000 words. The learners’ (mis)uses of the indefinite article were coded in terms of the suppliance of the indefinite article, formal properties of nouns, linguistic contexts of NPs, and semantic-pragmatic contexts of NPs. The corpus study addressed research questions 1, 2, 3, and 5 (5.1 and 5.2) (refer to the full list of research questions in the methods chapter):

1. How accurate is Chinese L2 learners’ knowledge of the indefinite article?

2. How are the formal properties of nouns (e.g. countability and concreteness) related to learners’ (mis)use of the indefinite article?
   2.1 Is the countability of nouns related to learners’ (mis)use of the indefinite article?
   2.2 Is the concreteness of nouns related to learners’ (mis)use of the indefinite article?

3. How are the linguistic contexts (e.g. the grammatical function of NPs in a sentence and whether there are modifiers in the NP) related to learners’ (mis)use of the indefinite article?
   3.1 How are the grammatical functions of NPs in a sentence (i.e. subject, object, and complement) related to learners’ (mis)use of the indefinite article?
   3.2 How are the modifiers in the NP related to learners’ (mis)use of the indefinite article?

5. How are the semantics of ‘specificity’ related to learners’ (mis)use of the indefinite article?
   5.1 Is the semantic specificity of NPs linked to learners’ use of the indefinite article?
   5.2 Is the pragmatic specificity of NPs linked to learners’ use of the indefinite article?

Research question 1 addresses how accurately Chinese university students use the English indefinite article in their compositions (i.e. a form of natural production as opposed to elicited
production). Research question 2 aims to explore whether a noun that is count/non-count and concrete/abstract affects learners’ use of the indefinite article. Research question 3 investigates whether the linguistic features of NPs affect article usage. Research question 5 looks at the potential effect of semantic specificity and pragmatic specificity of NPs on learners’ use of the indefinite article.

4.2 Inter-coder reliability

The researcher coded all the 101 texts and another coder coded 32 texts, about one-third of all the texts. The other coder is a native English speaker from New Zealand as well as an experienced EFL teacher in Asia. Two rounds of coding were carried out to check reliability. The other coder coded 14 compositions in the first round of coding. After discussing disagreements with the researcher, he coded a further 18 compositions (i.e. the second round of coding). Table 17 is a summary of the results of the two rounds of coding.

<table>
<thead>
<tr>
<th>Inter-coding</th>
<th>Number of texts</th>
<th>Type of texts</th>
<th>NPs of interest</th>
<th>Number of codes</th>
<th>Overall agreement</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st round</td>
<td>14</td>
<td>argumentative texts</td>
<td>41</td>
<td>279</td>
<td>85.66%</td>
</tr>
<tr>
<td>2nd round</td>
<td>18</td>
<td>8 argumentative and 10 narrative texts</td>
<td>72</td>
<td>480</td>
<td>89.75%</td>
</tr>
</tbody>
</table>

In the first round of coding, there were 41 noun phrases of interest in 14 student compositions. Due to the nature of the coding system, each noun phrase can have a different number of codes. If the noun phrase is a chunk, it is simply coded as a chunk and will not be further annotated. If the noun phrase is not a chunk, it will be coded for the suppliance of the article, the properties of nouns, its grammatical function in a clause, and semantic and pragmatic specificity. These 41 noun phrases resulted in 279 codes and the agreement between the two coders was 85.66%. In the second round of coding, there were 72 noun phrases of interest (annotated by 480 codes) in 18 texts. The total agreement improved to 89.75%.

Proportional agreement, or percentage of agreement, was calculated by dividing the number of codes agreed between the two coders by the total number of codes assigned to the noun phrases. The overall proportion of agreement (combining all coding categories) for each of
the two rounds of coding is listed in Table 17, and the proportional agreement for each coding category is listed in Table 18 below. 1

Table 18 Inter-coding reliability by category for the second round of coding

<table>
<thead>
<tr>
<th>Coding categories</th>
<th>Proportional agreement</th>
<th>Number of tokens</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chunks</td>
<td>98.61%</td>
<td>14</td>
</tr>
<tr>
<td>Suppliance of indefinite article</td>
<td>87.93%</td>
<td>58</td>
</tr>
<tr>
<td>Countability</td>
<td>96.55%</td>
<td>58</td>
</tr>
<tr>
<td>Concreteness/abstractness</td>
<td>94.83%</td>
<td>58</td>
</tr>
<tr>
<td>Grammatical functions</td>
<td>86.21%</td>
<td>58</td>
</tr>
<tr>
<td>Modifiers</td>
<td>91.38%</td>
<td>58</td>
</tr>
<tr>
<td>Genericity/semantic specificity</td>
<td>81.03%</td>
<td>58</td>
</tr>
<tr>
<td>Pragmatic specificity</td>
<td>93.10%</td>
<td>58</td>
</tr>
<tr>
<td>Definiteness</td>
<td>87.93%</td>
<td>58</td>
</tr>
</tbody>
</table>

As we can see from Table 18, all the coding categories have a proportional agreement of over 80%. The lowest agreement 81.03% occurs in the coding of semantic features (i.e. genericity/semantic specificity), which is not surprising as it can be difficult to determine the semantics of noun phrases in the limited contexts provided by the texts, and also it takes time for the coder to absorb the definitions of the semantic features as described in the coding system. The highest agreement 98.61% occurs in the coding of chunks, which indicates that the criteria advanced for coding chunks can well serve the purpose. The agreement percentage is relatively high (above 90%) in the coding of noun properties (such as countability and concreteness/abstractness), structural constructions (i.e. modifiers), and the discourse-level feature, pragmatic specificity. In contrast, semantics-related features, such as generic/semantic specificity (mentioned already) and definiteness, have a lower agreement. The agreement in the coding of the suppliance of the indefinite article was a satisfactory 87.93%, given the difficulty in judging whether a learner has correctly used the articles. The coding of grammatical functions is 86.21%, and as expected improved as the other coder became more familiar with the defined grammatical functions.

As mentioned in the literature review, the coding system of the current study was inspired by Lang’s (2010) coding system but with changes both in the definition of key concepts and in the structure of the coding system. Lang’s research is a longitudinal study of the acquisition of the entire English article system by an L1 Chinese child, while the present study investigated the use of the indefinite article by Chinese university students. Lang (2010) reported an inter-coder reliability of 83%, which suggests that it is generally difficult to code article usage. The reliability of the current coding can be regarded as satisfactory.
4.3 Analysis

This section will summarize the major methods of analysis used to answer the research questions, as these methods are crucial and repeatedly used in different sections. More specific analyses will be seen at the beginning of each section.

First of all, the concordance program AntConc 3.3.5 (Anthony, 2012) was used to count the number of tokens falling into each coding category. This corpus tool is especially useful in searching for tokens that occur in a specified context. Thus the frequency of the correct suppliance of *a* and the frequency of errors in a given context (either defined by a single feature or defined by a combination of features) can be computed.

The general accuracy of the use of the indefinite article was computed using the rate of suppliance in obligatory contexts (SOC) and the rate of target-like use (TLU) analyses (see the formulae in the following section).

To investigate the effect of a factor (i.e. noun properties, grammatical functions, modification, and semantic and pragmatic specificity) on the accuracy of the indefinite article, the Z-test was used to compare the proportions of correct suppliance of *a* (i.e. the accuracy in obligatory occasions) under the different features of the same factor. Fisher’s Exact test (Fisher, 1922) was used to explore whether there was any association between the three types of errors (i.e. omission, overuse of *the* for *a*, and overuse of *a* for the zero article) and the different features of the same factor.

Finally, the analysis moved from the individual effect of each feature to the effect of the combination of features. The most common feature under each factor ( provisionally called difficult features) was pulled out from the error matrix to form the most problematic context. The frequency of the combination of the four difficult features in the errors was checked and the error rate of different combinations of features was computed.

4.4 Results

4.4.1 Accuracy of the indefinite article

This section will answer research question 1: How accurate is Chinese L2 learners’ knowledge of the indefinite article?
To answer this question, the rate of suppliance in obligatory contexts (SOC) and the rate of target-like use (TLU) will be calculated. The formulae for computing the accuracy of the use of the indefinite article are listed below (Ellis & Barkhuizen, 2015, p. 80):

\[
\text{SOC} = \frac{N \text{ of correct suppliance in obligatory contexts}}{\text{Total } N \text{ of obligatory contexts}}
\]

\[
\text{TLU} = \frac{N \text{ of correct suppliance in obligatory contexts}}{\text{Total } N \text{ of obligatory contexts} + N \text{ of suppliance in non-obligatory contexts}}
\]

Pica (1983b) summarized the differences between the two: ‘Analysis by SOC reveals how well a subject has learned to produce a morpheme where it is required; analysis by TLU reveals how well a subject has learned to control production of that morpheme with regard to where it is, and is not required’ (p. 74). It can also be said that SOC is more sensitive to distinguishing omission errors in different contexts, while TLU is more sensitive to distinguishing overuse errors in different contexts. These two methods of analysis will present data in slightly different ways and will accordingly affect our interpretation of data. Using both methods will show learners’ control of the indefinite article in obligatory contexts as well as their control in non-obligatory contexts.

In addition to the accuracy analysis, the frequency of errors in each text will be provided to show individual differences in terms of article usage. Before calculating the accuracy rate, descriptive statistics of the coded contexts will be provided as it will be easier to see the general picture of the learner corpus.

### 4.4.1.1 Tokens of interest

The study coded 101 compositions and found 497 tokens of interest. Chunks accounted for 10.9% of all the coded noun phrases, and non-chunks accounted for 89.1% of the total. As discussed in the literature review, chunks may be rote-learned and produced as a whole by learners and are thus not subject to rule analysis. The study only focused on the use of the indefinite article in non-chunks, and did not further consider the results for chunks (see Table 19 for an overview of all the coded contexts). In non-chunks, there were 33 contexts that were coded as ambiguous suppliance, and they were also excluded from further analysis. Here is an example of an ambiguous context,

154. He won a greatful success <am1>.  

It was hard to code this context due to the awkward collocation. The study labelled such contexts as ‘ambiguous’ rather than trying to force a coding decision. The accuracy analysis will focus on the remaining 410 unambiguous contexts.

Table 19 Overview of all the coded contexts

<table>
<thead>
<tr>
<th>Total coded contexts N = 497</th>
<th>Chunks</th>
<th>Native-like chunks</th>
<th>49 (9.9%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>54 (10.9%)</td>
<td>Non-native-like chunks</td>
<td>5 (1.0%)</td>
</tr>
<tr>
<td>Non-chunks</td>
<td>443 (89.1%)</td>
<td>Ambiguous suppliance</td>
<td>33 (6.6%)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Unambiguous contexts</td>
<td>410 (82.5%)</td>
</tr>
</tbody>
</table>

Table 20 provides the frequency of each occasion in terms of the suppliance of the indefinite article. For each token of interest, the properties of nouns, grammatical functions, modifiers and semantic and pragmatic meanings were also coded (see Appendix H for the frequency of the distribution of these features).

There were 357 contexts where the learners used the indefinite article in obligatory occasions accurately, there were 17 contexts where the learners omitted the indefinite article and 10 contexts where the learners overused the definite article in place of the indefinite article. There were not many non-obligatory occasions (i.e. overuses of the indefinite article where it should not have been used): There was no overuse of a for the definite article and there were 8 overuses of a for the zero article. In other words, most of the errors related to the indefinite article were omission of a or overuse of the in place of a, and learners rarely overused a for other articles.
### Table 20 Suppliance of indefinite article

<table>
<thead>
<tr>
<th>Suppliance of indefinite article</th>
<th>Layer</th>
<th>Sub-category</th>
<th>Code</th>
<th>Label</th>
<th>Number of tokens</th>
<th>Sub-category total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Obligatory occasions</td>
<td>ob1</td>
<td>Supplied in obligatory occasions</td>
<td>357</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ob2</td>
<td>Omission in obligatory occasions</td>
<td>17</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ob3</td>
<td>Overuse of <em>the</em> for <em>a</em></td>
<td>10</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ob4</td>
<td>Overuse <em>one</em> for <em>a</em></td>
<td>0</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Non-obligatory occasions</td>
<td>nob1</td>
<td>Overuse of <em>a</em> for <em>the</em></td>
<td>0</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>nob2</td>
<td>Overuse of <em>a</em> for zero article</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Other occasions</td>
<td>an</td>
<td>Confusion between <em>a</em> and <em>an</em></td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>mis</td>
<td>Omission of <em>a</em> or a plural marker, or omission of <em>a</em> or <em>the</em></td>
<td>18</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>plu</td>
<td>Use of <em>a</em> with plural nouns</td>
<td>0</td>
<td>51</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>am1</td>
<td>Ambiguity about suppliance</td>
<td>33</td>
<td></td>
</tr>
</tbody>
</table>

Apart from the obligatory occasions and non-obligatory occasions for the use of the indefinite article, there are some other occasions which do not belong to either category. There are some contexts where the learner either omitted *a* or a plural marker, or omitted *a* or *the* (i.e. the ‘mis’ code), and they cannot be classified as an obligatory occasion. To give an example:

155. Then we lighted candle <mis> reading aloud.

In this sentence, *a candle* and *candles* are both possible, so it does not count as an obligatory occasion for the indefinite article *a*. This category, together with the ambiguous category mentioned above, will not be subject to further analysis, but the number of tokens in these categories may shed some light on the difficulty in coding article usage, as there are quite a few contexts that cannot be determined.\(^2\) Besides, there are 7 errors arising from learners’ confusion between *a* and *an*. As *a* and *an* are two forms of the indefinite article, the confusion between the different forms does not count as a suppliance error in the further context analysis.

#### 4.4.1.2 Accuracy

The accuracy rate of learners’ use of the indefinite article was fairly high. The rate of suppliance in obligatory contexts (SOC) was 93.0% and the rate of target-like use (TLU) was
91.1%. In addition to the SOC and TLU analyses, the percentage of the correct usage of a out of all the contexts where the learners used the indefinite article was even higher at 97.8%. The SOC and TLU analyses tell us how accurately learners have used the indefinite article in relation to its omission or omission plus overuse, while the percentage of correct a indicates that if we see 100 tokens of a, about 98 of them are correct, not taking into account confusion between a and an. As most of the errors related to the indefinite article are omission and commission errors, the mere percentage of correctly used a inflates the accuracy.

Learners were also quite accurate in their choice between a and an. There were only 7 cases of confusion between a and an, accounting for 1.9% of all the contexts where the indefinite article was used correctly or incorrectly.

There is another method to examine how accurately the learners used the indefinite article. The above methods computed the collective accuracy rate, and did not show the individual accuracy rate. As a matter of fact, the coded 101 essays were written by 101 different learners. It is meaningful to count the number of errors in each text. Errors related to the use of the indefinite article were discovered in 27 out of the 101 texts. Table 21 shows the number of texts classified by the frequency of errors.

<table>
<thead>
<tr>
<th>Frequency of errors</th>
<th>Number of texts (N = 101)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>74</td>
</tr>
<tr>
<td>1</td>
<td>19</td>
</tr>
<tr>
<td>2</td>
<td>8</td>
</tr>
<tr>
<td>3 and over</td>
<td>0</td>
</tr>
</tbody>
</table>

As we can see from the above frequency table, the majority (i.e. 73.3%) of the learners did not have any errors in the use of the indefinite article. Among the 27 texts which contained errors, 19 texts had one error and 8 texts had two errors. For a composition that is 150-350 words long, two errors or less in the use of the indefinite article can be considered satisfactory. No texts had more than three errors in the sample of this study. This indicates that the sample of university students investigated in the current study performed quite accurately in their use of the indefinite article. But the high accuracy rate should be viewed with caution for a number of reasons related to the limitation of the corpus study, which will be further explained in the discussion chapter.

To summarize the findings for research question 1,
1. In the 101 student compositions, there were 384 obligatory occasions for the use of the indefinite article and 8 non-obligatory occasions. There were also 18 occasions where either an article was missing or a plural marker was missing, and 33 ambiguous occasions where it was hard to code article usage.

2. The accuracy rate of learners’ use of the indefinite article in the coded compositions was fairly high. The rate of suppliance in obligatory contexts (SOC) was 93.0% and the rate of target-like use (TLU) was 91.1%.

3. There were 17 omissions of *a*, 10 overuses of *the* for *a*, and 8 overuses of *a* for zero article. No overuse of *a* for *the* was found.

4. Individual-wise, about 73.3% of the texts had no indefinite article error and the remaining 27 texts had only one or two errors.

**4.4.2 The effect of noun properties**

This section will address research question 2 and its sub-questions:

How are the formal properties of nouns (e.g. countability and concreteness) related to learners’ (mis)use of the indefinite article?

(1) Is the countability of nouns related to learners’ (mis)use of the indefinite article?

(2) Is the concreteness of nouns related to learners’ (mis)use of the indefinite article?

To answer the first sub-question, the proportions of the indefinite article with count nouns and with noncount nouns will be compared. Different types of errors in obligatory occasions and in non-obligatory occasions will be categorized in terms of the countability of nouns. To answer the second sub-question, the Z-test will be used to compare the accuracy of *a* in obligatory occasions in concrete nouns and in abstract nouns. Fisher’s Exact test will be used to explore whether the error types are related to the concreteness or abstractness of nouns.

**4.4.2.1 Countability**

To see whether learners have associated the countability of nouns with the use of the indefinite article, we can calculate the percentage of count nouns versus noncount nouns in the contexts where the learners have actually used the indefinite article. Table 22 lists all the uses of the indefinite article (whether correctly supplied or overused) in terms of countability.
There were all together 365 tokens of the indefinite article, and 98.1% of them were used with count nouns and 1.9% of them were used with noncount nouns. This is clear evidence of the learners’ knowledge that the indefinite article is associated with count nouns. Most of the time learners used the indefinite article with count nouns, and only on very few occasions did they overuse the indefinite article with noncount nouns.

Table 22 Indefinite article usage broken down by countability

<table>
<thead>
<tr>
<th></th>
<th>Suppliance in obligatory occasions</th>
<th>Overuse of <em>a</em> for <em>the</em></th>
<th>Overuse of <em>a</em> for zero article</th>
<th>Total</th>
<th>Relative frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Count</td>
<td>357</td>
<td>0</td>
<td>1</td>
<td>358</td>
<td>98.1%</td>
</tr>
<tr>
<td>Noncount</td>
<td>0</td>
<td>0</td>
<td>7</td>
<td>7</td>
<td>1.9%</td>
</tr>
<tr>
<td>Total</td>
<td>357</td>
<td>0</td>
<td>8</td>
<td>365</td>
<td>100%</td>
</tr>
</tbody>
</table>

The above analysis shows that learners’ use of the indefinite article is clearly related to count nouns. It remains to be seen whether the errors related to the indefinite article are also associated with the countability of nouns. Table 23 classifies the different types of errors of the indefinite article in the obligatory and non-obligatory occasions. In the obligatory occasions, there are 17 omissions of *a*, and 10 overuses of *the* for *a*. It should not be surprising that the errors with non-count nouns in the obligatory occasions are zero, as only count nouns constitute obligatory occasions for the use of the indefinite article. In contrast, errors can occur either with count nouns or with noncount nouns in the non-obligatory occasions. There are 7 overuses of *a* for zero article with noncount nouns and there is 1 overuse of *a* for zero article with count nouns. There is no overuse of *a* for *the*, as mentioned earlier. The omission errors with count nouns and the overuses of *a* for zero article with noncount nouns suggest that learners still have some problems distinguishing between count and noncount nouns, though they may already know that the indefinite article is associated with count nouns.

Table 23 Indefinite article errors in terms of countability

<table>
<thead>
<tr>
<th>Contexts</th>
<th>Error types</th>
<th>Count nouns (% of count nouns)</th>
<th>Noncount nouns (% of noncount nouns)</th>
<th>Row Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Obligatory occasions</td>
<td>Omission of <em>a</em></td>
<td>17 (60.7%)</td>
<td>0 (0%)</td>
<td>17 (48.6%)</td>
</tr>
<tr>
<td></td>
<td>Overuse of <em>the</em> for <em>a</em></td>
<td>10 (35.7%)</td>
<td>0 (0%)</td>
<td>10 (28.6%)</td>
</tr>
<tr>
<td>Non-obligatory occasions</td>
<td>Overuse of <em>a</em> for zero article</td>
<td>1 (3.6%)</td>
<td>7 (100%)</td>
<td>8 (22.9%)</td>
</tr>
<tr>
<td>Column Total</td>
<td></td>
<td>28 (100%)</td>
<td>7 (100%)</td>
<td>35 (100%)</td>
</tr>
</tbody>
</table>
4.4.2.2 Concreteness of nouns

Among the 384 obligatory occasions for the use of the indefinite article, there were 228 concrete nouns and 156 abstract nouns (see Table 24). Here is a coded sentence that illustrates the obligatory occasions for a with concrete and abstract nouns.

156. As an ordinary engineer, he has not much money or high position, but he is a man indeed in my heart.

In the above sentence, an ordinary engineer is an accurate use of the indefinite article with a concrete noun engineer, and high position is an omission of the indefinite article with an abstract noun position.

Correct suppliance of the indefinite article accounted for 95.6% of concrete nouns, and 89.1% of abstract nouns. The Z-test (see Agresti & Franklin, 2013, p. 470 for the formula of Z-test) was used to compare the accuracy of the indefinite article in concrete nouns and in abstract nouns. The Z-test results indicated that the accuracy in concrete nouns was significantly higher than the accuracy in abstract nouns ($z = 2.45$, $p = .01$, $r = .13$), which suggests that abstract nouns are more difficult than concrete nouns for learners in terms of the use of the indefinite article.

Table 24 Article suppliance in obligatory occasions in terms of concreteness of nouns

<table>
<thead>
<tr>
<th>Obligatory occasions</th>
<th>Concrete nouns (% of concrete nouns)</th>
<th>Abstract nouns (% of abstract nouns)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Suppliance of a</td>
<td>218 (95.6%)</td>
<td>139 (89.1%)</td>
</tr>
<tr>
<td>Omission of a</td>
<td>6 (2.6%)</td>
<td>11 (7.1%)</td>
</tr>
<tr>
<td>Overuse of the for a</td>
<td>4 (1.8%)</td>
<td>6 (3.8%)</td>
</tr>
<tr>
<td>Total = 384 (% of Total)</td>
<td>228 (59.4%)</td>
<td>156 (40.6%)</td>
</tr>
</tbody>
</table>

Table 25 categorizes the indefinite article errors in terms of the concreteness or abstractness of nouns. There are more errors with abstract nouns than with concrete nouns in both obligatory occasions and in non-obligatory occasions (i.e. in each category of the three error types), reflecting the general lower accuracy of a in abstract nouns than in concrete nouns. Due to the small sample size, Fisher’s exact test (1922) was used to further explore the potential relationship between error types and the concreteness/abstractness of nouns. The
analysis showed that there is no significant relationship between error types and whether the nouns are concrete or abstract (exact $p = .51$).

**Table 25 Indefinite article errors in terms of concreteness of nouns**

<table>
<thead>
<tr>
<th>Contexts</th>
<th>Error types</th>
<th>Concrete nouns (% of concrete nouns)</th>
<th>Abstract nouns (% of abstract nouns)</th>
<th>Row Total (% of Total)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Obligatory occasions</td>
<td>Omission of $a$</td>
<td>6 (54.5%)</td>
<td>11 (45.8%)</td>
<td>17 (48.6%)</td>
</tr>
<tr>
<td></td>
<td>Overuse of <em>the</em> for $a$</td>
<td>4 (36.4%)</td>
<td>6 (25.0%)</td>
<td>10 (28.6%)</td>
</tr>
<tr>
<td>Non-obligatory occasions</td>
<td>Overuse of $a$ for zero article</td>
<td>1 (9.1%)</td>
<td>7 (29.2%)</td>
<td>8 (22.9%)</td>
</tr>
<tr>
<td>Column Total (% of Total)</td>
<td></td>
<td>11 (31.4%)</td>
<td>24 (68.6%)</td>
<td>35 (100%)</td>
</tr>
</tbody>
</table>

To summarize the findings for research question 2,

1. Learners’ use of the indefinite article is closely related to count nouns, as 98.1% of the tokens of the indefinite article occur with count nouns.

2. There were quite a few omissions of $a$ with count nouns and overuses of $a$ for zero article with noncount nouns, which indicates that learners have some problems in distinguishing between count and noncount nouns, despite their knowledge that the indefinite article is associated with count nouns.

3. In obligatory occasions, the accuracy of $a$ in concrete nouns is significantly higher than the accuracy in abstract nouns.

4. There is no significant relationship between error types and the concreteness or abstractness of nouns.

**4.4.3 The effect of linguistic contexts**

This section will answer research question 3 and its sub-questions:

How are the linguistic contexts (e.g. the grammatical function of NPs in a sentence and whether there are modifiers in the NP) related to learners’ (mis)use of the indefinite article?

(1) How are the grammatical functions of NPs in a sentence (i.e. subject, object, and complement) related to learners’ (mis)use of the indefinite article?
(2) How are the modifiers in the NP related to learners’ (mis)use of the indefinite article?

To answer the first sub-question, the Z-test will be used to compare the accuracy of a in obligatory occasions across different grammatical functions. Fisher’s Exact test will be used to explore whether error types are related to the different grammatical functions. To answer the second sub-question, the Z-test will be used to compare the accuracy of a in obligatory occasions with modified nouns and with unmodified nouns, to be followed up by Fisher’s Exact test to investigate the relationship between error types and whether the noun phrase is modified or not.

4.4.3.1 Grammatical functions

The coding system coded all the possible grammatical functions of noun phrases, but the main grammatical functions of noun phrases are subject, object, complement and prepositional complement. Table 26 categorizes the use of the indefinite article in obligatory occasions in terms of these four major grammatical functions. The subject position has an accuracy of 100% (i.e. the number of correct suppliance of a divided by the total number of obligatory occasions). The complement position has an accuracy of 95.7%, higher than the accuracy in the prepositional complement 92.7%. The accuracy in the direct object is the lowest among the four positions, i.e. 89.0%. Here are examples of errors with noun phrases in different positions.

157. In our every day life, for example, if we first use knife for the first time, we can’t use it well, if we try to use it for several times. (an omission of a with the noun knife in the object position)

158. I knew it’s bad habit and I’m determined to get out of it. (an omission of a with the noun habit in the complement position)

159. In addition, the classroom was full of light atmosphere, because of her smiling friendly, our feeling comfortable, without any extra pressure upon us. (an omission of a with the noun atmosphere as prepositional complement)

The Z-test results showed that the accuracy in the subject position was significantly higher than in the direct object position ($z = 1.93$, $p = .05$, $r = .16$), but it was not significantly higher than in the prepositional complement position ($z = 1.55$, $p = .12$, $r = .16$) and than in the complement position ($z = 1.17$, $p = .24$, $r = .10$). The accuracy in the complement position
was significantly higher than in the direct object position \( (z = -1.94, p = .05, r = -.13) \). There were no significant differences in other pair-wise comparisons.

If we make a general comparison between the subject position and the non-subject positions (i.e. including direct object, complement and prepositional complement), the accuracy in the combined non-subject positions is 92.4%, and there is no significant difference in accuracy between the subject position and the non-subject positions \( (z = 1.59, p = 0.11, r = 0.09) \).

**Table 26 Article suppliance in obligatory occasions in terms of grammatical functions**

<table>
<thead>
<tr>
<th>Obligatory occasions</th>
<th>Subj (% of subj)</th>
<th>Obj (% of obj)</th>
<th>Comp (% of comp)</th>
<th>Prep comp (% prep comp)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Suppliance of ( a )</td>
<td>31 (100%)</td>
<td>105 (89.0%)</td>
<td>112 (95.7%)</td>
<td>76 (92.7%)</td>
</tr>
<tr>
<td>Omission of ( a )</td>
<td>0 (0%)</td>
<td>8 (6.8%)</td>
<td>2 (1.7%)</td>
<td>4 (4.9%)</td>
</tr>
<tr>
<td>Overuse of ( the ) for ( a )</td>
<td>0 (0%)</td>
<td>5 (4.2%)</td>
<td>3 (2.6%)</td>
<td>2 (2.4%)</td>
</tr>
<tr>
<td>Total = 348 (% of Total)</td>
<td>31 (8.9%)</td>
<td>118 (33.9%)</td>
<td>117 (33.6%)</td>
<td>82 (23.6%)</td>
</tr>
</tbody>
</table>

*Note.* Subj: subject; obj: direct object; comp: complement; prep comp: prepositional complement

The above analysis found that there was a significant difference in accuracy for the obligatory occasions between some different grammatical functions. The following analysis will focus on the errors and explore whether error types are associated with the different grammatical functions of noun phrases. Table 27 lists all the errors in terms of grammatical functions. Fisher’s Exact test for the 3 \( \times \) 4 contingency table indicated that the distribution of errors is independent of the grammatical function of the noun phrases (exact \( p = .44 \)). In other words, despite the difference in proportions of the three types of errors in each grammatical function, the difference was not significant. For example, there are 8 omission errors in the direct object position (i.e. 47.1% of errors in this position) and there are 2 omission errors in the complement position (i.e. 25% of errors in this position), but the direct object position does not have significantly more omission errors than the complement position.
Table 27 Indefinite article errors in terms of grammatical functions

<table>
<thead>
<tr>
<th>Contexts</th>
<th>Error types</th>
<th>Subj (% of subj)</th>
<th>Obj (% of obj)</th>
<th>Comp (% of comp)</th>
<th>Prep comp (% of prep comp)</th>
<th>Row Total (% of Total)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Obligatory occasions</td>
<td>Omission of a</td>
<td>0 (0%)</td>
<td>8 (47.1%)</td>
<td>2 (25.0%)</td>
<td>4 (66.7%)</td>
<td>14 (43.8%)</td>
</tr>
<tr>
<td></td>
<td>Overuse of the for a</td>
<td>0 (0%)</td>
<td>5 (29.4%)</td>
<td>3 (37.5%)</td>
<td>2 (33.3%)</td>
<td>10 (31.3%)</td>
</tr>
<tr>
<td>Non-obligatory occasions</td>
<td>Overuse of a for zero article</td>
<td>1 (100%)</td>
<td>4 (23.5%)</td>
<td>3 (37.5%)</td>
<td>0 (0%)</td>
<td>8 (25.0%)</td>
</tr>
<tr>
<td>Column Total (% of Total)</td>
<td></td>
<td>1 (3.1%)</td>
<td>17 (53.1%)</td>
<td>8 (25.0%)</td>
<td>6 (18.8%)</td>
<td>32 (100%)</td>
</tr>
</tbody>
</table>

Note. Subj: subject; obj: direct object; comp: complement; prep comp: prepositional complement

4.4.3.2 Modifiers

The coding system coded noun phrases in terms of four levels of modification: 1. no modifiers, 2. pre-modifiers, 3. post-modifiers and 4. pre- and post-modifiers. Table 28 lists the use of the indefinite article in obligatory occasions classified by the four levels of modification.

Table 28 Obligatory occasion use of a classified by modification

<table>
<thead>
<tr>
<th>Obligatory occasions</th>
<th>No modifier</th>
<th>Modifier</th>
<th></th>
<th></th>
<th>Pre- and post-modifier</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Pre-modifier</td>
<td>Post-modifier</td>
<td></td>
<td>Pre- and post-modifier</td>
</tr>
<tr>
<td>Suppliance of a</td>
<td>106 (93.0%)</td>
<td>142 (92.8%)</td>
<td>55 (94.8%)</td>
<td>54 (91.5%)</td>
<td></td>
</tr>
<tr>
<td>Omission of a</td>
<td>5 (4.4%)</td>
<td>8 (5.2%)</td>
<td>2 (3.4%)</td>
<td>2 (3.4%)</td>
<td></td>
</tr>
<tr>
<td>Overuse of the for a</td>
<td>3 (2.6%)</td>
<td>3 (2.0%)</td>
<td>1 (1.7%)</td>
<td>3 (5.1%)</td>
<td></td>
</tr>
<tr>
<td>Total = 384</td>
<td>114</td>
<td>153</td>
<td>58</td>
<td>59</td>
<td></td>
</tr>
</tbody>
</table>

Due to the small number of tokens in the error categories, the three types of modification were combined into a general ‘modifier’ category (see Table 29). The accuracy of the indefinite article in unmodified noun phrases was 93.0%, the same as the accuracy in modified noun phrases.
Table 29 Article suppliance in obligatory occasions (no modifier vs. modifier)

<table>
<thead>
<tr>
<th>Obligatory occasions</th>
<th>No modifier</th>
<th>Modifier</th>
</tr>
</thead>
<tbody>
<tr>
<td>Suppliance of a</td>
<td>106 (93.0%)</td>
<td>251 (93.0%)</td>
</tr>
<tr>
<td>Omission of a</td>
<td>5 (4.4%)</td>
<td>12 (4.4%)</td>
</tr>
<tr>
<td>Overuse of the for a</td>
<td>3 (2.6%)</td>
<td>7 (2.6%)</td>
</tr>
<tr>
<td>Total = 384</td>
<td>114</td>
<td>270</td>
</tr>
</tbody>
</table>

Another factor that is worth noticing is the potential effect of pre-modifiers, as an earlier study (Butler, 2002) found that learners are likely to overuse the definite article for the indefinite article with nouns that are modified by an adjective. To further explore this effect, the Z-test was used to compare the proportion of overuse of the for a with unmodified noun phrases (i.e. 2.6%) and its proportion with pre-modified noun phrases (i.e. 2.8%) (refer to the shaded cells in Table 30). Here the number of noun phrases with pre-modifiers included those that have both a pre-modifier and a post-modifier.

Table 30 Article suppliance in obligatory occasions (no modifier vs. pre-modifier)

<table>
<thead>
<tr>
<th>Obligatory occasions</th>
<th>No modifier</th>
<th>Pre-modifier</th>
</tr>
</thead>
<tbody>
<tr>
<td>Suppliance of a</td>
<td>106 (93.0%)</td>
<td>196 (92.5%)</td>
</tr>
<tr>
<td>Omission of a</td>
<td>5 (4.4%)</td>
<td>10 (4.7%)</td>
</tr>
<tr>
<td>Overuse of the for a</td>
<td>3 (2.6%)</td>
<td>6 (2.8%)</td>
</tr>
<tr>
<td>Total = 326</td>
<td>114</td>
<td>212</td>
</tr>
</tbody>
</table>

The Z-test showed no significant difference in the proportions of the commission errors between unmodified noun phrases and pre-modified noun phrases ($z = -.10$, $p = .92$, $r = .01$). To put it plainly, the existence of pre-modifiers has no significant effect on learners’ preference for the over a.

The above analysis has found that modification does not significantly affect the accuracy in obligatory occasions. The following analysis will explore the relationship between error types and whether noun phrases have any modification. Table 31 lists all the errors in terms of whether they occur with modified noun phrases or unmodified noun phrases. Fisher’s Exact test showed that the distribution of errors is independent of whether the nouns are modified or not (exact $p = .22$). In other words, the proportion of omission errors with unmodified noun
phrases (i.e. 62.5%) is not significantly different from its proportion with modified noun phrases (i.e. 44.4%), the proportion of commission errors with unmodified noun phrases (i.e. 37.5%) is not significantly different from its proportion with modified noun phrases (i.e. 25.9%), and the proportion of overuses of a for zero article with unmodified noun phrases (i.e. 0%) is not significantly different from its proportion with modified noun phrases (i.e. 29.6%).

### Table 31 Indefinite article errors in terms of modification

<table>
<thead>
<tr>
<th>Contexts</th>
<th>Error types</th>
<th>No modifier (% of no modifier)</th>
<th>Modifier (% of modifier)</th>
<th>Row Total (% of Total)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Obligatory occasions</td>
<td>Omission of a</td>
<td>5 (62.5%)</td>
<td>12 (44.4%)</td>
<td>17 (48.6%)</td>
</tr>
<tr>
<td></td>
<td>Overuse of the for a</td>
<td>3 (37.5%)</td>
<td>7 (25.9%)</td>
<td>10 (28.6%)</td>
</tr>
<tr>
<td>Non-obligatory occasions</td>
<td>Overuse of a for zero article</td>
<td>0 (0%)</td>
<td>8 (29.6%)</td>
<td>8 (22.9%)</td>
</tr>
<tr>
<td>Column Total (% of Total)</td>
<td></td>
<td>8 (22.9%)</td>
<td>27 (77.1%)</td>
<td>35 (100%)</td>
</tr>
</tbody>
</table>

To summarize the findings for research question 3,

1. The accuracy of the indefinite article with noun phrases serving different grammatical functions was different: 100% for subject, 95.7% for complement, 92.7% for prepositional complement, and 89.0% for direct object. The accuracy in the subject position was significantly higher than that in the direct object position. The accuracy in the complement position was also significantly higher than in the direct object position.

2. There is no significant difference in accuracy between the subject position and the combined category of non-subject positions.

3. Despite the difference in the proportions of errors in different grammatical functions, the distribution of errors is independent of the grammatical functions of noun phrases.

4. The accuracy of the indefinite article in unmodified noun phrases is not significantly different from the accuracy in modified noun phrases.

5. The proportion of the commission errors (i.e. overuse the for a) in unmodified noun phrases is not significantly different from that in pre-modified noun phrases.

6. The distribution of errors is independent of whether the noun phrase has a modifier or not.
4.4.4 The effect of semantic-pragmatic contexts

This section will answer research question 5:

How are the semantics of ‘specificity’ related to learners’ (mis)use of the indefinite article?

(1) Is the semantic specificity of NPs linked to learners’ use of the indefinite article?

(2) Is the pragmatic specificity of NPs linked to learners’ use of the indefinite article?

To answer the first sub-question, the Z-test will be used to compare the accuracy of a in semantically specific contexts and in semantically non-specific contexts in obligatory occasions. Fisher’s Exact test will be used to explore whether error types are related to semantic specificity. The odds ratio will be calculated to estimate the effect size of the association between the two variables. To answer the second sub-question, the Z-test will be used to compare the accuracy of a in pragmatically specific contexts and in pragmatically non-specific contexts in obligatory occasions before Fisher’s Exact test is used to explore the relationship between error types and pragmatic specificity.

4.4.4.1 Semantic specificity

Among the 377 obligatory occasions for the indefinite article, there were 243 semantically non-specific contexts and 134 semantically specific contexts, the former about twice as many as the latter (as shown in Table 32). There were also more errors (i.e. omission and commission errors) in the semantically non-specific contexts than in the semantically specific contexts. The accuracy of the indefinite article (i.e. suppliance of a) accounted for 96.3% of noun phrases in the semantically specific context, and the accuracy accounted for 90.9% of noun phrases in the semantically non-specific context. The Z-test showed that the accuracy in the semantically specific context was significantly higher than the accuracy in the semantically non-specific context ($z = 1.92, p = .05, r = .10$).

Table 32 Article suppliance in obligatory occasions in terms of semantic specificity

<table>
<thead>
<tr>
<th>Obligatory occasions</th>
<th>Semantically specific</th>
<th>Semantically non-specific</th>
</tr>
</thead>
<tbody>
<tr>
<td>Suppliance of a</td>
<td>129 (96.3%)</td>
<td>221 (90.9%)</td>
</tr>
<tr>
<td>Omission of a</td>
<td>4 (3.0%)</td>
<td>13 (5.3%)</td>
</tr>
<tr>
<td>Overuse of the for a</td>
<td>1 (0.7%)</td>
<td>9 (3.7%)</td>
</tr>
<tr>
<td>Total = 377 (% of Total)</td>
<td>134 (35.5%)</td>
<td>243 (64.5%)</td>
</tr>
</tbody>
</table>
Having found a significant difference in accuracy between semantically specific and non-specific contexts, I continued to explore the potential relationship between error types and semantic specificity. Table 33 categorizes the three types of errors in terms of semantic specificity. There are more errors in the semantically non-specific context than in the semantically specific context in obligatory occasions. In contrast, there are slightly more errors in the semantically specific context than in the semantically non-specific context in non-obligatory occasions. Fisher’s Exact test showed that there is a marginally significant association between error types and whether the noun phrases are semantically specific or not (exact $p = .059$).

**Table 33 Indefinite article errors in terms of semantic specificity**

<table>
<thead>
<tr>
<th>Contexts</th>
<th>Error types</th>
<th>Semantically specific (% of semantically specific)</th>
<th>Semantically non-specific (% of semantically non-specific)</th>
<th>Row Total (% of Total)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Obligatory occasions</td>
<td>Omission of $a$</td>
<td>4 (40.0%)</td>
<td>13 (52.0%)</td>
<td>17 (48.6%)</td>
</tr>
<tr>
<td></td>
<td>Overuse of <em>the</em> for $a$</td>
<td>1 (10.0%)</td>
<td>9 (36.0%)</td>
<td>10 (28.6%)</td>
</tr>
<tr>
<td>Non-obligatory occasions</td>
<td>Overuse of $a$ for zero article</td>
<td>5 (50.0%)</td>
<td>3 (12.0%)</td>
<td>8 (22.9%)</td>
</tr>
<tr>
<td>Column Total (% of Total)</td>
<td></td>
<td>10 (28.6%)</td>
<td>25 (71.4%)</td>
<td>35 (100%)</td>
</tr>
</tbody>
</table>

The above Fisher’s Exact test was conducted on the whole 2 x 3 contingency table and showed that the two variables (i.e. error types and semantic specificity) were associated, but it could not tell which types of errors were different from each other. To further examine the differences, we can partition the contingency table and test the smaller 2 x 2 tables (Agresti, 2013, p. 81; Larson-Hall, 2010, p. 234). Table 34 shows the partitioning of data in Table 33. The original 2 x 3 table is partitioned into two 2 x 2 tables. The first partition (i.e. leftmost table in Table 34) used the first two rows and first two columns of the original table, and the second partition (i.e. rightmost table in Table 34) combined the first two rows and compared them to the third row.
Fisher’s Exact test was used on each of the two partition tables. The results showed that the association between the first two error types (i.e. omission of *a* and overuse of *the* for *a*) and semantic specificity is not significant (exact $p = .62$), while the association between errors and specificity becomes significant (exact $p = .03$) if errors are grouped as in the rightmost table (i.e. the first two error types combined as a category and the third error type as another category). Note that the first two types are errors in obligatory occasions (i.e. where the indefinite article should be used) while the third type is errors in non-obligatory occasions (i.e. where the indefinite article should not be used). The results indicate that the difference between error types lies in the difference between obligatory occasion errors and non-obligatory occasion errors, and not between the two types of obligatory occasion errors themselves. To be more concrete, in obligatory occasions there are more errors (either omission or commision errors) in the semantically non-specific context than in the semantically specific context. In contrast, in non-obligatory occasions there are more errors (i.e. overuses of *a* for the zero article) in the semantically specific context than in the semantically non-specific context. To illustrate the errors with two examples,

160. One person should not complain his being absent of charm because his parents haven’t given him **handsome face** and graceful stature.

161. Finally, I made **a great progress** in English study and could get high score in English examinations.

Sentence 160 is an example for the omission of the indefinite article in an obligatory context. The noun phrase **handsome face** is semantically non-specific, as it does not refer to any particular face that can be uniquely identified. As mentioned above, a semantically non-specific context is more likely to attract an omission or commision error than a semantically specific context. Sentence 161 is an example of the overuse of *a* for the zero article in a semantically specific context. The **progress** mentioned refers to something particular that the

---

**Table 34 Partitioning the 2 x 3 table into 2 x 2 tables**

<table>
<thead>
<tr>
<th>Error types</th>
<th>Semantically specific</th>
<th>Semantically non-specific</th>
<th>Error types</th>
<th>Semantically specific</th>
<th>Semantically non-specific</th>
</tr>
</thead>
<tbody>
<tr>
<td>omission of <em>a</em></td>
<td>4</td>
<td>13</td>
<td>omission of <em>a</em> + overuse of <em>the</em> for <em>a</em></td>
<td>5</td>
<td>22</td>
</tr>
<tr>
<td>overuse of <em>the</em> for <em>a</em></td>
<td>1</td>
<td>9</td>
<td>overuse of <em>a</em> for zero article</td>
<td>5</td>
<td>3</td>
</tr>
</tbody>
</table>

---
speaker had in mind and therefore it is a specific referent. Overuse of *a* for the zero article is more likely to occur in a semantically specific context as in Sentence 161 than in a semantically non-specific context.

Having found an association between error types and semantic specificity, we can estimate the effect size or the strength of the association between error types and semantic specificity by calculating the odds ratio on the rightmost partition table in Table 34 (refer to Larson-Hall (2010, p. 237) for the formula). The odds of the learners overusing *a* for the zero article in a semantically specific context is 5/5 = 1; the odds of the learners overusing *a* for the zero article in a semantically non-specific context is 3/22 = 0.136. The odds ratio is 1/0.136 = 7.352, which means in a semantically specific context learners are about 7 times more likely to overuse *a* for the zero article than in a semantically non-specific context. Alternatively, it can be calculated that the odds of the learners not using *a* (i.e. either omitting it or using *the* in its place) in a semantically non-specific context is about 7 times higher than the odds of the learners not using *a* in a semantically specific context.

**4.4.4.2 Pragmatic specificity**

There were altogether 384 obligatory occasions that were coded in terms of pragmatic specificity, among which pragmatically non-specific contexts accounted for 74.0% of the total, about three times as many as pragmatically specific contexts (as shown in Table 35). Here are two erroneous examples to illustrate pragmatic specificity and non-specificity.

162. In our every day life, for example, if we first use knife for the first time, we can’t use it well, if we try to use it for several times. (omission of *a*)

163. I hope I will find a better work after I graduate. (overuse of *a* for the zero article)

The knife in Sentence 162 was mentioned again after having been mentioned for the first time, and therefore it is coded as pragmatically specific in the sense of topic continuity, while work in Sentence 163 is pragmatically non-specific as it was just mentioned once and was clearly not intended to be a topic by the speaker. It is not surprising that there are far more pragmatically non-specific contexts than pragmatically specific contexts, as the majority of the referents are just introduced in passing and only a few referents need to be elaborated on or developed into topics.
Table 35 Article suppliance in obligatory occasions in terms of pragmatic specificity

<table>
<thead>
<tr>
<th>Obligatory occasions</th>
<th>Pragmatically specific</th>
<th>Pragmatically non-specific</th>
</tr>
</thead>
<tbody>
<tr>
<td>Suppliance of <em>a</em></td>
<td>98 (98.0%)</td>
<td>259 (91.2%)</td>
</tr>
<tr>
<td>Omission of <em>a</em></td>
<td>2 (2.0%)</td>
<td>15 (5.3%)</td>
</tr>
<tr>
<td>Overuse of <em>the</em> for <em>a</em></td>
<td>0 (0%)</td>
<td>10 (3.5%)</td>
</tr>
<tr>
<td>Total = 384 (% of Total)</td>
<td>100 (26.0%)</td>
<td>284 (74.0%)</td>
</tr>
</tbody>
</table>

The accuracy of the indefinite article accounted for 98.0% of noun phrases in the pragmatically specific context, and the accuracy accounted for 91.2% of noun phrases in the pragmatically non-specific context (see Table 35). The Z-test showed that the accuracy in the pragmatically specific context was significantly higher than the accuracy in the pragmatically non-specific context ($z = 2.29, p = .02, r = .12$).

Table 36 classifies the indefinite article errors in terms of whether the context is pragmatically specific or not. There are more errors in the pragmatically non-specific context than in the pragmatically specific context, either in obligatory contexts or in non-obligatory contexts. Fisher’s Exact test showed that the distribution of errors was independent of whether the context was pragmatically specific or not (exact $p = .23$). To put it another way, the proportion of each type of error in pragmatically specific contexts was not significantly different from its proportion in pragmatically non-specific contexts.

Table 36 Indefinite article errors in terms of pragmatic specificity

<table>
<thead>
<tr>
<th>Contexts</th>
<th>Error types</th>
<th>Pragmatically specific (% of pragmatically specific)</th>
<th>Pragmatically non-specific (% of pragmatically non-specific)</th>
<th>Row Total (% of Total)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Obligatory occasions</strong></td>
<td>Omission of <em>a</em></td>
<td>2 (50.0%)</td>
<td>15 (48.4%)</td>
<td>17 (48.6%)</td>
</tr>
<tr>
<td></td>
<td>Overuse of <em>the</em> for <em>a</em></td>
<td>0 (0%)</td>
<td>10 (32.3%)</td>
<td>10 (28.6%)</td>
</tr>
<tr>
<td><strong>Non-obligatory occasions</strong></td>
<td>Overuse of <em>a</em> for zero article</td>
<td>2 (50.0%)</td>
<td>6 (19.4%)</td>
<td>8 (22.9%)</td>
</tr>
<tr>
<td><strong>Column Total (% of Total)</strong></td>
<td></td>
<td>4 (11.4%)</td>
<td>31 (88.6%)</td>
<td>35 (100%)</td>
</tr>
</tbody>
</table>

To summarize the findings for research question 5,
1. The accuracy of the indefinite article in the semantically specific context was significantly higher than the accuracy in the semantically non-specific context.

2. The distribution of the omission and commission errors in obligatory occasions is independent of semantic specificity, but the distribution of errors in obligatory occasions and in non-obligatory occasions is associated with semantic specificity. In a semantically specific context learners are about 7 times more likely to overuse *a* for the zero article than in a semantically non-specific context.

3. The accuracy of the indefinite article in the pragmatically specific context was significantly higher than the accuracy in the pragmatically non-specific context.

4. The distribution of the three types of errors is independent of pragmatic specificity.

4.4.5 Error-prone contexts

The analyses in previous sections have found that four factors (i.e. noun properties, the grammatical functions of noun phrases, semantic specificity and pragmatic specificity) each have a significant effect on the accuracy of the use of the indefinite article in obligatory occasions. However, previous analyses examined these factors individually and have not explored the effect of a combination of factors. This section will investigate the collective effect of these factors and find out in which context a particular type of error is most likely to occur by characterizing the context in terms of the four factors. In order to find the effect of a cluster of factors, errors of each category (i.e. omission, commission, and overuse *a* for the zero article) will be listed in a table showing factors that were found to be significant. Note that previously the study also explored the effect of modification on the accuracy of the indefinite article. As this factor had no significant effect, it will not be included in the table. The frequency of each combination of the four factors will be checked in the error table as well as in all the coded obligatory contexts, so that the error rate of each combination of factors can be computed. This section will analyse the contexts for the three types of errors one by one.

**Omission errors**

There are altogether 17 omission errors from the sampled compositions. They are listed in Table 37 with codes relevant to the significant factors. Refer to Appendix I for the complete list of errors with full coding. In the table, there are four coding categories (i.e. factors that were shown to be significant in the previous analyses): noun properties (abstractness or
concreteness of nouns), grammatical functions of noun phrases (object, complement, subject, and etc.), semantic specificity and pragmatic specificity. The four codes relate to the underlined noun in the sentence. Take Sentence 164 for an example:

164. When I saw him on the first sight, his big eyes gave me deep and nice impression.

The context characterizing the underlined part is: abstract (ab1), object (obj1), sel (semantically specific), and pr2 (pragmatically non-specific).

### Table 37 Omission errors with coded features

<table>
<thead>
<tr>
<th>No.</th>
<th>Erroneous sentences (omission)</th>
<th>Ab</th>
<th>Gr</th>
<th>Se</th>
<th>Pr</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>After period [of] practice, some skills can be grasped.</td>
<td>ab2</td>
<td>part</td>
<td>se2</td>
<td>pr2</td>
</tr>
<tr>
<td>2</td>
<td>In our every day life, for example, if we first use knife for the first time, we can’t use it well, if we try to use it for several times.</td>
<td>ab1</td>
<td>obj1</td>
<td>se2</td>
<td>pr1</td>
</tr>
<tr>
<td>3</td>
<td>I knew it’s bad habit and I’m determined to get out of it.</td>
<td>ab2</td>
<td>comp</td>
<td>se2</td>
<td>pr2</td>
</tr>
<tr>
<td>4</td>
<td>After graduation I want to work at company where there is challenge.</td>
<td>ab2</td>
<td>comp</td>
<td>se2</td>
<td>pr2</td>
</tr>
<tr>
<td>5</td>
<td>You must prepare for five minutes’ speech.</td>
<td>ab2</td>
<td>prep</td>
<td>se2</td>
<td>pr2</td>
</tr>
<tr>
<td>6</td>
<td>Soon I entirely lay in sea of the music.</td>
<td>ab2</td>
<td>part</td>
<td>se1</td>
<td>pr2</td>
</tr>
<tr>
<td>7</td>
<td>You must have much bravery to write diary.</td>
<td>ab1</td>
<td>obj1</td>
<td>se2</td>
<td>pr2</td>
</tr>
<tr>
<td>8</td>
<td>One person should not complain his being absent of charm because his parents haven’t given him handsome face and graceful stature.</td>
<td>ab1</td>
<td>obj1</td>
<td>se2</td>
<td>pr2</td>
</tr>
<tr>
<td>9</td>
<td>Finally, I made a great progress in English study and could get high score in English examinations.</td>
<td>ab2</td>
<td>obj1</td>
<td>se2</td>
<td>pr2</td>
</tr>
<tr>
<td>10</td>
<td>As an ordinary engineer, he has not much money or high position, but he is a man indeed in my heart.</td>
<td>ab2</td>
<td>obj1</td>
<td>se2</td>
<td>pr2</td>
</tr>
<tr>
<td>11</td>
<td>The hardware includes monitor, keyboard, main board with CPU, modem, mouse, hard-disk and its driver, CD-driver, soft-disk driver, RAM, sound box and its driver.</td>
<td>ab1</td>
<td>obj1</td>
<td>se2</td>
<td>pr2</td>
</tr>
<tr>
<td>12</td>
<td>When I saw him on the first sight, his big eyes gave me deep and nice impression.</td>
<td>ab2</td>
<td>obj1</td>
<td>se1</td>
<td>pr2</td>
</tr>
<tr>
<td>13</td>
<td>In addition, the classroom was full of light atmosphere, because of her smiling friendly, our feeling comfortable, without any extra pressure upon us.</td>
<td>ab2</td>
<td>prep</td>
<td>se1</td>
<td>pr2</td>
</tr>
<tr>
<td>14</td>
<td>If you visit my house, you would feel the breath of modern house.</td>
<td>ab1</td>
<td>prep</td>
<td>se2</td>
<td>pr2</td>
</tr>
<tr>
<td>15</td>
<td>These movies often attract many people and earn large amount [of] money for their producers.</td>
<td>ab2</td>
<td>obj1</td>
<td>se2</td>
<td>pr2</td>
</tr>
<tr>
<td>16</td>
<td>No matter how can you think I consider that all kinds of sports reveal man’s strength and braveness that he challenges the nature and himself.</td>
<td>ab1</td>
<td>prn</td>
<td>se2</td>
<td>pr1</td>
</tr>
<tr>
<td>17</td>
<td>The silent answer to such personal insult made me wonder what it was that made him such an odd boy.</td>
<td>ab2</td>
<td>prep</td>
<td>se1</td>
<td>pr2</td>
</tr>
</tbody>
</table>

*Note. Abbreviations in Table 37 and the subsequent error tables:*
**Ab**: abstractness or concreteness of nouns (ab1: concrete nouns; ab2: abstract nouns)
**Gr**: grammatical functions of noun phrases (obj1: object; comp: complement; prep: prepositional complement; prm: premodifier; part: partition)
**Se**: semantic specificity (se1: semantically specific; se2: semantically non-specific)
**Pr**: pragmatic specificity (pr1: pragmatically specific; pr2: pragmatically non-specific)

In each coding category, the number of different features was counted, and the most frequent feature in each category is highlighted in red. As can be seen from Table 37, the four features that stand out are: ab2, obj1, se2, pr2, that is, abstractness, object, semantically non-specific and pragmatically non-specific. In other words, they are the most common features shown in the omission errors. The results displayed in the table are in line with the previous Z-tests that showed that the accuracy of the indefinite article in obligatory contexts is significantly lower with these features than with other features in the same category. Let us temporarily call these features that cause more errors ‘difficult features’. Interestingly, there is no error that contains none of the difficult features as shown in the table. In fact, most errors contain three or four difficult features, and there is only one error that contains just one difficult feature.

A relevant question is: How often do these four features appear at the same time in the current data? It is intuitively correct for us to state that each of these four features can cause problems for learners and therefore the combination of these four should be the most problematic context. But these four features may not necessarily co-occur very often in the actual errors and the errors may show other combinations of features that are also noteworthy. Table 38 extracted all the combinations that occurred in the omission errors from Table 37. The frequency of each combination in the 17 omission errors is listed in the table. The most frequent combinations in the errors are [concrete, object, semantically non-specific, pragmatically non-specific] and [abstract, object, semantically non-specific, pragmatically non-specific]. Both occur 3 times in the 17 errors. Two combinations each occurred twice and seven combinations each occurred once only. The frequency of each combination in the sample (i.e. in a total of 392 obligatory occasions for the indefinite article) was checked. The error rate of each combination of features is calculated by dividing the frequency of a certain combination in errors by its frequency in the whole sample. If a combination rarely occurs in the sample, even if there is one error containing this combination, the error rate will be very high, which will be misleading. For this reason, I only computed the error rate for those combinations that account for at least 5% of the total obligatory occasions, that is, at least 20 times. There are four combinations with a frequency of above 20 in the sample, as shown in
Table 38. The combination [concrete, object, semantically non-specific, pragmatically non-specific] has the highest error rate at 13.6%. This combination contains three of the four most difficult features, and therefore it is not really surprising it has a high error rate. The combination [abstract, object, semantically non-specific, pragmatically non-specific] has the second highest error rate 12.0%, and it is also the combination that is supposed to form the most problematic context on the basis of the Z-test results. In fact, the error rates for these two combinations are not significantly different. To sum up, the error matrix shows that most omission errors occur with nouns which are: either concrete or abstract, in the object position of the sentence, and in a semantically and pragmatically non-specific context.

Table 38 Matrix of combinations of features for the omission errors

<table>
<thead>
<tr>
<th>Noun properties</th>
<th>Grammatical functions</th>
<th>Semantic specificity</th>
<th>Pragmatic specificity</th>
<th>Frequency in errors</th>
<th>Frequency in sample</th>
<th>Error rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>concrete</td>
<td>object</td>
<td>non-specific</td>
<td>non-specific</td>
<td>3</td>
<td>22</td>
<td>13.6%</td>
</tr>
<tr>
<td>abstract</td>
<td>object</td>
<td>non-specific</td>
<td>non-specific</td>
<td>3</td>
<td>25</td>
<td>12.0%</td>
</tr>
<tr>
<td>abstract</td>
<td>prepositional complement</td>
<td>specific</td>
<td>non-specific</td>
<td>2</td>
<td>17</td>
<td>--</td>
</tr>
<tr>
<td>abstract</td>
<td>complement</td>
<td>non-specific</td>
<td>non-specific</td>
<td>2</td>
<td>33</td>
<td>6.1%</td>
</tr>
<tr>
<td>concrete</td>
<td>prepositional complement</td>
<td>non-specific</td>
<td>non-specific</td>
<td>1</td>
<td>27</td>
<td>3.7%</td>
</tr>
<tr>
<td>abstract</td>
<td>object</td>
<td>specific</td>
<td>non-specific</td>
<td>1</td>
<td>15</td>
<td>--</td>
</tr>
<tr>
<td>abstract</td>
<td>prepositional complement</td>
<td>non-specific</td>
<td>non-specific</td>
<td>1</td>
<td>9</td>
<td>--</td>
</tr>
<tr>
<td>concrete</td>
<td>object</td>
<td>non-specific</td>
<td>specific</td>
<td>1</td>
<td>8</td>
<td>--</td>
</tr>
<tr>
<td>abstract</td>
<td>partition</td>
<td>non-specific</td>
<td>non-specific</td>
<td>1</td>
<td>3</td>
<td>--</td>
</tr>
<tr>
<td>abstract</td>
<td>partition</td>
<td>specific</td>
<td>non-specific</td>
<td>1</td>
<td>1</td>
<td>--</td>
</tr>
<tr>
<td>concrete</td>
<td>premodifier</td>
<td>non-specific</td>
<td>specific</td>
<td>1</td>
<td>1</td>
<td>--</td>
</tr>
</tbody>
</table>

**Overuse of the for a**

There are altogether 10 commission errors from the sampled compositions. Table 39 displays the erroneous sentences with codes in the four significant coding categories. The most frequent feature (highlighted in red) in each category is: abstractness (ab2), object (obj1), semantically non-specific (se2), and pragmatically non-specific (pr2), respectively. These are the most common features in the commission errors and they also agree with the previous Z-test results. As shown in the table, all the commission errors contain at least two difficult features and most errors have three or four difficult features.
Table 39 Commission errors with coded features

<table>
<thead>
<tr>
<th>No.</th>
<th>Erroneous sentences (overuse the for a)</th>
<th>Ab</th>
<th>Gr</th>
<th>Se</th>
<th>Pr</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Then saving fresh water should be insisted for long-term, for the global shortage of fresh water isn’t the short-term thing.</td>
<td>ab2</td>
<td>comp</td>
<td>se2</td>
<td>pr2</td>
</tr>
<tr>
<td>2</td>
<td>The students study very hard, and I also try my best to win the prize.</td>
<td>ab1</td>
<td>obj1</td>
<td>se2</td>
<td>pr2</td>
</tr>
<tr>
<td>3</td>
<td>Once the Chinese football team appears in the mach [match] and each time they have a shot, I’ll shout, jump and song.</td>
<td>ab1</td>
<td>prep</td>
<td>se2</td>
<td>pr2</td>
</tr>
<tr>
<td>4</td>
<td>In the last three years I won the prize some times.</td>
<td>ab1</td>
<td>obj1</td>
<td>se1</td>
<td>pr2</td>
</tr>
<tr>
<td>5</td>
<td>It doesn’t only determined [require] the standard pronunciation, but also need the strong ability of response.</td>
<td>ab2</td>
<td>obj1</td>
<td>se2</td>
<td>pr2</td>
</tr>
<tr>
<td>6</td>
<td>It doesn’t only determined [require] the standard pronunciation, but also need the strong ability of response.</td>
<td>ab2</td>
<td>obj1</td>
<td>se2</td>
<td>pr2</td>
</tr>
<tr>
<td>7</td>
<td>Last year, the age of her 40’s birthday, She has entered the “211” and has become the important one all the country.</td>
<td>ab1</td>
<td>comp</td>
<td>se2</td>
<td>pr2</td>
</tr>
<tr>
<td>8</td>
<td>I hasn't the good idea for work now.</td>
<td>ab2</td>
<td>obj1</td>
<td>se2</td>
<td>pr2</td>
</tr>
<tr>
<td>9</td>
<td>In my option [opinion], e-mail is the trend of the developing of communication way.</td>
<td>ab2</td>
<td>comp</td>
<td>se2</td>
<td>pr2</td>
</tr>
<tr>
<td>10</td>
<td>You may easily connect the computer to the Internet and fetch what you want, send an E-mail to your friend, or invest into the financial fields, for example, stocks, through the financial platform.</td>
<td>ab2</td>
<td>prep</td>
<td>se2</td>
<td>pr2</td>
</tr>
</tbody>
</table>

Similarly, I will now check how often the combination of the four difficult features actually occurs in the data. Table 40 shows all the combinations of features that occurred in the omission errors. The combination of the four difficult features (i.e. [abstract, object, semantically non-specific, pragmatically non-specific]) occurred 3 times out of the 10 commission errors, and is the most frequent combination in this type of errors. The next frequent combination is [abstract, complement, semantically non-specific, pragmatically non-specific], occurring 2 times. Then we compute the error rate for each combination (excluding the combinations with an occurrence of below 20 in the sample). The error rates are ranked in descending order in Table 40. The combination with the highest error rate (i.e. 12.0%) is exactly the one containing all the four difficult features, much higher than the combination with the second highest error rate 6.1%. Thus it can be safely said that most commission errors occur with nouns which are: abstract, in the object position of the sentence and in a semantically and pragmatically non-specific context.
Before we proceed to the third type of errors, it may be useful to combine the results for the first two types of errors, as they are both errors in obligatory contexts, unlike the third type of errors that occurs in non-obligatory contexts. Table 41 lists the three combinations of features with the highest combined error rates. It shows that learners are most likely to make a mistake (i.e. either omit a or overuse the for a) with nouns that are: abstract, in the object position, semantically and pragmatically non-specific. The combined error rate for this context is 24.0%, followed by 18.2% for the context that differs only in the abstractness of nouns.

Table 41 Error-prone contexts in obligatory occasions

<table>
<thead>
<tr>
<th>Noun properties</th>
<th>Grammatical functions</th>
<th>Semantic specificity</th>
<th>Pragmatic specificity</th>
<th>Frequency in errors</th>
<th>Frequency in sample</th>
<th>Error rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>abstract</td>
<td>object</td>
<td>non-specific</td>
<td>non-specific</td>
<td>3</td>
<td>25</td>
<td>12.0%</td>
</tr>
<tr>
<td>abstract</td>
<td>complement</td>
<td>non-specific</td>
<td>non-specific</td>
<td>2</td>
<td>33</td>
<td>6.1%</td>
</tr>
<tr>
<td>concrete</td>
<td>object</td>
<td>non-specific</td>
<td>non-specific</td>
<td>1</td>
<td>22</td>
<td>4.5%</td>
</tr>
<tr>
<td>concrete</td>
<td>prepositional complement</td>
<td>non-specific</td>
<td>non-specific</td>
<td>1</td>
<td>27</td>
<td>3.7%</td>
</tr>
<tr>
<td>concrete</td>
<td>complement</td>
<td>non-specific</td>
<td>non-specific</td>
<td>1</td>
<td>68</td>
<td>1.5%</td>
</tr>
<tr>
<td>concrete</td>
<td>object</td>
<td>specific</td>
<td>non-specific</td>
<td>1</td>
<td>11</td>
<td>--</td>
</tr>
<tr>
<td>abstract</td>
<td>prepositional complement</td>
<td>non-specific</td>
<td>non-specific</td>
<td>1</td>
<td>9</td>
<td>--</td>
</tr>
</tbody>
</table>

The co-occurrence of the four difficult features does increase the error rate as compared to the individual error rate for each difficult feature. Table 42 shows the error rate under each difficult feature as well as the error rate under the combination of four features. The error rate is calculated by dividing the number of errors containing a feature by the total number of obligatory occasions containing the same feature. The error rate for the omission errors is 7.1% with abstract nouns, 6.8% with objects, 5.3% with semantically non-specific nouns, and 5.3% with pragmatically non-specific nouns. When the four difficult features co-appear, the error rate jumps to 12.0%. Similarly, the error rate for the commission errors is below 5.0% for each individual feature, but it increases to 12.0% when the four features coincide.
Table 42 Error rate for each difficult feature

<table>
<thead>
<tr>
<th>Error type</th>
<th>Abstract</th>
<th>Object</th>
<th>Semantically non-specific</th>
<th>Pragmatically non-specific</th>
<th>Combination of four features</th>
</tr>
</thead>
<tbody>
<tr>
<td>Omission</td>
<td>11 (7.1%)</td>
<td>8 (6.8%)</td>
<td>13 (5.3%)</td>
<td>15 (5.3%)</td>
<td>3 (12.0%)</td>
</tr>
<tr>
<td>Commission</td>
<td>6 (3.8%)</td>
<td>5 (4.2%)</td>
<td>9 (3.7%)</td>
<td>10 (3.5%)</td>
<td>3 (12.0%)</td>
</tr>
<tr>
<td>Omission + Commission</td>
<td>17 (10.9%)</td>
<td>13 (11.0%)</td>
<td>22 (9.1%)</td>
<td>25 (8.8%)</td>
<td>6 (24.0%)</td>
</tr>
<tr>
<td>Total obligatory occasions</td>
<td>156</td>
<td>118</td>
<td>243</td>
<td>284</td>
<td>25</td>
</tr>
</tbody>
</table>

**Overuse of a for zero article**

There are 8 errors in non-obligatory occasions. Table 43 displays the erroneous sentences with codes in the four significant coding categories. The most frequent features in each category are: abstractness (ab2), object (obj1), semantically specific (se1), and pragmatically non-specific (pr2), respectively. Hence, these are the four difficult features for this type of error (highlighted in the table). It is noteworthy that the more frequent feature in the semantic specificity category is [semantically specific] rather than [semantically non-specific], unlike in the first two types of errors (i.e. errors in obligatory contexts). It agrees with the previous finding that learners are more likely to overuse a for the zero article in a semantically specific context than in a semantically non-specific context, while learners are more likely to fail to supply a (either omit a or use the in its place) in a semantically non-specific context (see in Section 4.4.4.1). There is no error that contains none of the four difficult features. Most errors contain three or four difficult features, as for the first two types of errors.

For this type of error, we cannot compute the error rate for each combination of features, as the error rate relates the frequency of a combination in the errors to the frequency of the combination in all the non-obligatory contexts in the sample. The study only coded obligatory occasions as well as non-obligatory occasions where a is used, but cannot possibly know the total number of non-obligatory occasions where a is not used (i.e. literally all the nouns minus the obligatory occasions). Nevertheless, we can still check the frequency of each combination in the errors. The combination of the four difficult features is exactly the one that occurred most often. It occurred twice while all the other combinations occurred just once. This further supports the claim that most overuses of a for the zero article occur with
nouns which are: abstract, in the object position of the sentence, semantically specific and pragmatically non-specific.

Table 43 Non-obligatory occasion errors with coded features

<table>
<thead>
<tr>
<th>No.</th>
<th>Erroneous sentences (overuse a for the zero article)</th>
<th>Ab</th>
<th>Gr</th>
<th>Se</th>
<th>Pr</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>I hope I will find a better work after I graduate.</td>
<td>ab2</td>
<td>obj1</td>
<td>se2</td>
<td>pr2</td>
</tr>
<tr>
<td>2</td>
<td>A another reason for my dislike of my dormitory is that there is a leak in the roof, the rain will come in from it.</td>
<td>ab2</td>
<td>subj</td>
<td>se1</td>
<td>pr1</td>
</tr>
<tr>
<td>3</td>
<td>In our country we have today achieved in a high degree the blessings of Democracy, there is freedom; there is law; there is a widening prosperity.</td>
<td>ab2</td>
<td>comp</td>
<td>se1</td>
<td>pr2</td>
</tr>
<tr>
<td>4</td>
<td>Finally, I made a great progress in English study and could get high score in English examinations.</td>
<td>ab2</td>
<td>obj1</td>
<td>se1</td>
<td>pr1</td>
</tr>
<tr>
<td>5</td>
<td>In the so-called information technology society in the next decades, computer will become a necessary electronic equipment in daily life, just as television and refrigerator.</td>
<td>ab1</td>
<td>comp</td>
<td>se2</td>
<td>pr2</td>
</tr>
<tr>
<td>6</td>
<td>She gave us a strong confidence in learning how to write a beautiful essay.</td>
<td>ab2</td>
<td>obj1</td>
<td>se1</td>
<td>pr2</td>
</tr>
<tr>
<td>7</td>
<td>After nearly one-century development, movies have a leap Progress in the every aspect.</td>
<td>ab2</td>
<td>obj1</td>
<td>se1</td>
<td>pr2</td>
</tr>
<tr>
<td>8</td>
<td>This is the true meaning of friendship we admired. It cannot be calculated by money. This is a great wealth for people in their life.</td>
<td>ab2</td>
<td>comp</td>
<td>se2</td>
<td>pr2</td>
</tr>
</tbody>
</table>

To summarize the findings in this section,

1. Most omission errors occur with nouns which are: either concrete or abstract, objects, semantically non-specific and pragmatically non-specific.

2. Most overuses of *the* for *a* occur with nouns which are: abstract, objects, semantically non-specific and pragmatically non-specific.

3. Most overuses of *a* for the zero article occur with nouns which are: abstract, objects, semantically specific and pragmatically non-specific.

4. The most problematic contexts for the two types of errors in obligatory contexts (i.e. omission and overuse of *the* for *a*) are similar, while the most problematic context for the overuse of *a* for the zero article differs in being semantically non-specific.

5. The co-occurrence of the four difficult features increases the error rate as compared to the error rate for each feature.
6. There is no error from the current sample that contained none of the four difficult features (the four difficult features being slightly different for different types of errors).

7. The combination of the four difficult features occurred most often in the errors as compared to the other combinations of features, which supports the intuition that the four individually difficult features make up the collectively most difficult context.

4.4.6 Summary

The results of the corpus study are summarized below.

1. The accuracy rate of learners’ use of the indefinite article in the coded compositions was high. The rate of suppliance in obligatory contexts (SOC) was 93.0% and the rate of target-like use (TLU) was 91.1%. Individual-wise, about 73.3% of the 101 texts sampled had no indefinite article error and the remaining 27 texts had one or two errors.

2. Learners’ use of the indefinite article was closely related to count nouns, as can be seen from the percentage of the indefinite article with count nouns as opposed to that with noncount nouns (i.e. 98.1% vs. 1.9%).

3. The concreteness/abstractness of nouns had an effect on the accuracy of the indefinite article. In obligatory contexts, the accuracy of a in concrete nouns was significantly higher than the accuracy in abstract nouns, although there was no significant relationship between error types and the concreteness or abstractness of nouns.

4. The grammatical functions of noun phrases had an effect on the accuracy of the indefinite article. The accuracy in the direct object position (i.e. 89.0%) was significantly lower than the accuracy in the subject position (i.e. 100%) and the complement position (i.e. 95.7%). However, the distribution of errors was independent of the grammatical functions of noun phrases.

5. Modification in noun phrases did not have a significant effect on the accuracy of the indefinite article. The accuracy of the indefinite article in unmodified noun phrases was not significantly different from the accuracy in modified noun phrases. Also, the distribution of errors was independent of whether the noun phrase had a modifier or not (or in particular, whether the noun phrase had a pre-modifier or not).
6. Semantic specificity significantly affected the accuracy of the indefinite article. The accuracy of the indefinite article in the semantically specific context was significantly higher than in the semantically non-specific context. The distribution of errors in obligatory contexts and in non-obligatory contexts was associated with semantic specificity. In a semantically specific context learners were about 7 times more likely to overuse *a* for the zero article than in a semantically non-specific context.

7. Pragmatic specificity had a significant effect on the accuracy of the indefinite article. The accuracy of the indefinite article in the pragmatically specific context was significantly higher than in the pragmatically non-specific context, while the distribution of different types of errors was independent of the pragmatic specificity of the context.

8. The error-prone contexts for different types of errors differed slightly. The omission and commission errors were most likely to occur with nouns which were: abstract, objects, semantically non-specific and pragmatically non-specific. Overuses of *a* for the zero article were mostly likely to occur with nouns which were: abstract, objects, semantically specific and pragmatically non-specific.

9. The co-occurrence of the four difficult features (i.e. the features under which each type of errors are most likely to occur) increased the error rate as compared to the error rate for each difficult feature.

10. There was no error from the current sample that contained none of the four difficult features (the four difficult features being slightly different for different types of errors).
Notes

1 It may be worth mentioning that Cohen’s kappa is the most common test for inter-rater reliability with categorical data, but the kappa statistic was not used here as it could be misleading. For studies where there is a rather low presence of certain characteristics, the kappa statistic may be very low even when there is a high proportional agreement. Such is the paradox of kappa: high agreement but low kappa (Cicchetti & Feinstein, 1990; Feinstein & Cicchetti, 1990). In the current study, there was a drastic imbalance in the distribution of features in most of the coding categories. For example, the dominant majority of nouns coded in this study have a count form, which is determined by the purpose of the study, that is, to investigate the use of the indefinite article. The asymmetry in feature distribution makes it improper to use the kappa statistic. Therefore, the current study only reported proportional agreement as an index of inter-coding reliability.

2 The study also coded the contexts where the learner used the or zero article where a was also acceptable (i.e. accep1) and the contexts where the learner used a where the or zero article was acceptable (i.e. accep2). There were 25 tokens in the former category and 6 tokens in the latter category. As they were not errors and also there were not many tokens in total, the study did not further analyse them, but such items reflect the variability in article usage and the potential difficulty in coding article usage.

3 The formula to calculate the effect size \( r \) is: \( r = \frac{z}{\sqrt{N}} \) (\( z \) is \( z \)-score, \( N \) is total sample). The interpretation of effect size \( r \) follows J. Cohen (1988): \( r = .10 \) (small effect); \( r = .30 \) (medium effect); \( r = .50 \) (large effect), as cited in Field (2013, p. 82).

4 To be precise, Fisher’s Exact test only applies to 2 x 2 contingency tables. SPSS performs the Freeman-Halton extension of Fisher’s Exact test (Freeman & Halton, 1951), when the contingency table is larger than 2 x 2, though the SPSS output labels the results under the name of Fisher’s exact test.

5 The examples from student compositions may not be grammatical, but they are listed as originally written. The word in the square bracket is added by the researcher to help the reader understand the sentence.
Chapter 5 Results for the University Students

5.1 Introduction

This chapter reports the results from analyzing the data of the second-year university students. The results will help answer research questions 1, 3 (3.1), 4, and 5.

1. How accurate is university-level Chinese L2 learners’ knowledge of the indefinite article?

3. How are the linguistic contexts of NPs (e.g. the grammatical function of NPs in a sentence and whether there are modifiers in the NP) related to learners’ (mis)use of the indefinite article?

   3.1 How are the grammatical functions of NPs in a sentence (i.e. subject, object, and complement) related to learners’ (mis)use of the indefinite article?

4. How are the semantic contexts of NPs (i.e. specific, non-specific, and generic contexts) related to learners’ (mis)use of the indefinite article?

5. How are the semantics of ‘specificity’ related to learners’ (mis)use of the indefinite article?

   5.1 Is the semantic specificity of NPs linked to learners’ use of the indefinite article?

   5.2 Is the pragmatic specificity of NPs linked to learners’ use of the indefinite article?

   5.3 Is the explicitly stated knowledge (ESP) of NPs linked to learners’ use of the indefinite article?

To summarize the above research questions, research question 1 is concerned with the general picture of the acquisition of the indefinite article by Chinese university students; research question 3 aims to investigate whether the grammatical functions of NPs in a sentence will affect learners’ use of the indefinite article; research question 4 probes the effects of semantic contexts on learners’ (mis)use of the indefinite article; research question 5 intends to further explore whether ‘specificity’ will affect learners’ choice of articles, and if so, which kind of ‘specificity’ is at work, as an extension of previous studies.
5.2 Validation of the instruments

There are different types of validity (e.g. content validity, face validity, construct validity, etc.) in applied linguistics research. The one that is most relevant to the current study is content validity. Content validity concerns how well an instrument tests what it purports to test. Content validity cannot be measured by statistical methods, but by the judgment of panels of experts as to how representative and comprehensive a test is (Hatch & Lazaraton, 1991). For the present study, both the GJT and article choice test aim to test L2 learners’ use of the indefinite article in different semantic-pragmatic contexts. The definitions of the relevant semantic-pragmatic concepts (e.g. specificity) were arrived at after a review of the linguistic and SLA literature, and the tests covered all the possible contexts defined by different combinations of semantic features. The content validity of these instruments is supported by both the linguistic definitions and native speakers’ feedback in the pilot study as to how well the items were written or whether there is any referential ambiguity.

The main study revised or replaced items that were considered to be controversial in the pilot study, and also trialled the new items on five native speakers, which contributed to the content validity of the tests. It should be noted, however, that validity doesn’t mean that every native speaker of English should agree with each of the items in the tests. Disagreement among native speakers on grammar, especially article usage, is natural, if not inevitable. The disagreement also has a lot to do with the method of tests. The grammaticality judgment test is more likely to elicit disagreement than the article choice test for the reasons as follows. 1. The GJT only provides a rather limited context that can be subject to different kinds of interpretation on the part of readers, unlike the article choice test that has a fuller context. 2. The GJT contains some contexts of article usage that are not frequently seen such as the generic context, and people find it hard to judge usages of a low frequency due to unfamiliarity. 3. It is also likely that some people base their judgment on preference rather than on grammaticality, which has always been an issue with GJT and is not peculiar to the current test. For these reasons, it is not surprising to find that not all the native speakers achieved 100% accuracy in the GJT designed for this study which will be reported later. It is also necessary to clarify a bit on the issue of ‘accuracy’. In the current study, accuracy is measured on the basis of whether the participants provided the answer that the contexts were designed to elicit. While the intended answer is based on the most common interpretation of the designed contexts, there is no way to prevent the participants from reading the context in a different way and thus arriving at a different answer (especially in the case of the GJT).
Such alternative answers, which are only possible with a less likely interpretation, were scored as incorrect. Therefore, the accuracy of native speaker participants to be reported below should be understood in this light.

Apart from content validity, construct validity is also relevant to the current study. The instruments of the current study mainly measure learners’ explicit knowledge of the indefinite article. Explicit knowledge refers to ‘structured knowledge of which learners are consciously aware’ (Ellis, 2009c, p. 38). Explicit knowledge is conscious, declarative, and generally accessible only through controlled processing, while implicit knowledge is tacit, intuitive, procedural, and available through automatic processing, according to the features summarized in Ellis (2009a). When performing a linguistic task, learners may draw on a combination of explicit knowledge and implicit knowledge. At best, it can be said that the GJT and the article choice test used in the current study are more likely to reflect learners’ explicit knowledge than implicit knowledge. Ellis (2009c) identified seven criterial features that can distinguish measures of explicit knowledge and implicit knowledge. These features will help explain why the instruments here tap more of learners’ explicit knowledge. Here two relevant features will be explained: time available and focus of attention. In terms of the availability of time, the GJT used in the current study is untimed and therefore offers learners plenty of opportunity to deliberate on their judgment. Concerning focus of attention, the GJT presents items with underlined noun phrases, asking learners explicitly to judge whether the use of articles is grammatical or not, and to provide a correction if learners consider the article ungrammatical. It is obvious that the GJT here calls for a primary focus on form and prompts learners to reflect on their knowledge of the articles. Similar things can be said of the article choice test. The article choice test is also untimed, and it also draws learners’ attention to form by asking learners to choose the most appropriate article from three possible answers. Thus, the two instruments here prompt learners to access more explicit knowledge than implicit knowledge. The type of knowledge of the indefinite article that the research questions are concerned with is explicit knowledge. In other words, the data elicited by the instruments can tell little about learners’ ability to use the indefinite article in speaking tasks which are more likely to measure implicit knowledge rather than explicit knowledge.

Apart from content validity and construct validity, face validity is also related to the study. Face validity refers to how easy it will be to convince the students, teachers, and other researchers that a certain test measures what it purports to measure (Hatch & Lazaraton, 1991, p. 540). The format of GJT and multiple choice questions are quite familiar to students.
in China and also the instructions unambiguously show that the instruments test students’ knowledge of the articles. Therefore, the face validity of the instruments is ensured.

**NS participants’ performance**

**GJT**

There were 20 items out of the total 52 items that did not have a 100% accuracy. Table 44 below lists the item numbers, the noun phrases targeted in the item, the contexts of the items, and whether the item is shown in the grammatical or ungrammatical form, together with the accuracy rate in ascending order. The remaining items not listed in the table all had a 100% accuracy rate. Refer to Appendix C for the complete English article test (including the GJT and the article choice test).

**Table 44 Native speakers’ accuracy in GJT (100% accurate items not listed)**

<table>
<thead>
<tr>
<th>Item No.</th>
<th>NP underlined</th>
<th>G or UG</th>
<th>Context</th>
<th>Accuracy</th>
</tr>
</thead>
<tbody>
<tr>
<td>37</td>
<td>Monkey</td>
<td>UG</td>
<td>generic</td>
<td>0.28</td>
</tr>
<tr>
<td>25</td>
<td>Computer</td>
<td>UG</td>
<td>generic</td>
<td>0.52</td>
</tr>
<tr>
<td>48</td>
<td>White rose</td>
<td>UG</td>
<td>generic</td>
<td>0.6</td>
</tr>
<tr>
<td>4</td>
<td>A monkey</td>
<td>G</td>
<td>generic</td>
<td>0.8</td>
</tr>
<tr>
<td>43</td>
<td>A computer</td>
<td>G</td>
<td>generic</td>
<td>0.8</td>
</tr>
<tr>
<td>24</td>
<td>The dancer</td>
<td>UG</td>
<td>specific, subject</td>
<td>0.84</td>
</tr>
<tr>
<td>29</td>
<td>Hammer</td>
<td>UG</td>
<td>generic</td>
<td>0.84</td>
</tr>
<tr>
<td>31</td>
<td>The white rose</td>
<td>G</td>
<td>generic</td>
<td>0.84</td>
</tr>
<tr>
<td>8</td>
<td>The senior manager</td>
<td>UG</td>
<td>non-specific, subject</td>
<td>0.88</td>
</tr>
<tr>
<td>13</td>
<td>A white rose</td>
<td>G</td>
<td>generic</td>
<td>0.88</td>
</tr>
<tr>
<td>34</td>
<td>The computer</td>
<td>G</td>
<td>generic</td>
<td>0.88</td>
</tr>
<tr>
<td>51</td>
<td>The hammer</td>
<td>G</td>
<td>generic</td>
<td>0.88</td>
</tr>
<tr>
<td>6</td>
<td>A hammer</td>
<td>G</td>
<td>generic</td>
<td>0.92</td>
</tr>
<tr>
<td>21</td>
<td>The monkey</td>
<td>G</td>
<td>generic</td>
<td>0.92</td>
</tr>
<tr>
<td>22</td>
<td>panda</td>
<td>UG</td>
<td>non-specific, object</td>
<td>0.92</td>
</tr>
<tr>
<td>10</td>
<td>the farmer</td>
<td>UG</td>
<td>non-specific, complement</td>
<td>0.96</td>
</tr>
<tr>
<td>14</td>
<td>the book</td>
<td>UG</td>
<td>specific, object</td>
<td>0.96</td>
</tr>
<tr>
<td>18</td>
<td>the hotel</td>
<td>UG</td>
<td>non-specific, object</td>
<td>0.96</td>
</tr>
<tr>
<td>27</td>
<td>the classmate</td>
<td>UG</td>
<td>specific, object</td>
<td>0.96</td>
</tr>
<tr>
<td>39</td>
<td>the scientist</td>
<td>UG</td>
<td>specific, subject</td>
<td>0.96</td>
</tr>
</tbody>
</table>

Two things stand out in Table 44. The most noticeable feature is that three items have a rather low accuracy rate (i.e. items 37, 25, and 48). The accuracy rates for these three items are 28%, 52%, and 60%, respectively, all below an acceptable threshold of 80%. The low accuracy of these items warrants a good explanation. These items are all shown in the
ungrammatical form (i.e. zero article followed by a singular noun). In the generic context, the use of articles is often interchangeable. To use item 37 as an example,

Item 37. Monkey often represents cleverness in religion and culture.

All the NSs correctly judged this item to be ungrammatical (and they also judged all the other ungrammatical items to be incorrect), but they corrected the item in different ways, varying between ‘monkeys’, ‘the monkey’ and ‘a monkey’. It should be acknowledged that all the three corrections are grammatically correct. However, the current scoring method only awarded a point to the use of the indefinite article in the correction, as the GJT test was designed to test whether learners could recognize the indefinite article when given the grammatical form, and whether learners could use the indefinite article when given the ungrammatical form. The generic context is the only context where different articles are possible, with only a subtle difference in nuance, while there is little controversy with non-generic contexts where either the definite or the indefinite article should be used. It explains why the accuracy scores for the ungrammatical items in the generic context were rather low, while the grammatical items in the generic context were not impacted by the scoring method as only judgement was taken into account for grammatical items. Therefore, it is not proper to compare the accuracy for ungrammatical items in the generic context between NSs and NNSs in the same way as for other contexts. Instead, the study will separately analyse the ungrammatical items in the generic context and compare the difference in corrections given by the NSs and the NNSs for these items. For the grammatical items in the generic context, their accuracy could still be compared with other semantic contexts. For the rest of the discussion on accuracy, the four ungrammatical items in the generic context will not be included, as they will be analysed separately.

The other thing that is worth mentioning is that after excluding the four ungrammatical items in the generic context, all the items had an accuracy of 80% or above. The items where NSs differed most concentrated on the generic contexts, except for two non-generic items (one non-specific and the other specific, i.e. item 8 and item 24). It is not really surprising that the generic use of *a* or *the* is not a context where English speakers would readily agree given that the generic context does not frequently occur in our daily conversation and the format of GJT with its limited context is subject to multiple interpretations.

As the current study is mainly interested in the indefinite article, the four items targeting the definite article in the generic context of the GJT were only included to enable a comparison
between the use of the indefinite article and the use of the definite article in the generic context. Such a comparison will be conducted in a section devoted to the discussion of the generic context that comes last in this chapter. The following descriptive statistics only relate to the accuracy of the 44 main items, that is, items that target the indefinite article.

Native speakers’ overall accuracy rate for the GJT was 0.974. The data was highly negatively skewed, as the bulk of the data were situated on the right end (i.e. the high accuracy end). See Table 45 for detailed descriptive statistics of NSs’ accuracy in the GJT.

<table>
<thead>
<tr>
<th>Test</th>
<th>N</th>
<th>Mean</th>
<th>Median</th>
<th>SD</th>
<th>95% CI</th>
<th>Min.</th>
<th>Max.</th>
<th>Skewness</th>
<th>SES</th>
</tr>
</thead>
<tbody>
<tr>
<td>GJT</td>
<td>25</td>
<td>.974</td>
<td>.977</td>
<td>.026</td>
<td>[.963, .984]</td>
<td>.930</td>
<td>1</td>
<td>-.571</td>
<td>.464</td>
</tr>
</tbody>
</table>

Table 45 Native speakers’ accuracy in GJT

Article choice test

All the native speaker participants achieved 100% accuracy in the 32 main items of the article choice test. As the distractors are irrelevant to the research questions, they will not be discussed here. Since all the native speaker participants gave exactly the same accurate answers in the 32 main items, the data was constant and there was no need for descriptive statistics for the accuracy of the article choice test.

To summarize, the native speakers’ performance in the GJT cast doubt on the validity of the three ungrammatical items in the generic context. There was no disagreement on the judgment of these items, but these items (including the other item in the same context that did not have a low accuracy) elicited different corrections. The study will exclude all the four ungrammatical items in the generic context for the rest of the analysis involving accuracy, and will separately analyse these items with respect to the type of corrections provided. All the other items in the GJT and in the article choice test were validated by the native speakers’ responses. Compared to the perfect 100% accuracy in the article choice test, the GJT did not elicit full consensus on the grammaticality of each item. However, the native speaker participants agreed on the vast majority of the items, and for those items, where there was disagreement, the lowest agreement rate (or accuracy rate) was above 80% (excluding the four ungrammatical items in the generic context). An 80% agreement rate can be regarded as acceptable given the nature of the GJT and the complexity of articles (as mentioned above).
5.3 Reliability of the instruments

Reliability, fundamentally speaking, refers to the ‘consistency of measures across different conditions in the measurement procedure’ (Bachman, 2004, p. 153). There are different sources of inconsistency, or in other words, measurement error. This section reports two approaches to estimating reliability corresponding to the sources of inconsistency relevant to the current testing situation: 1. internal reliability, and 2. external (test-retest) reliability. The former approach estimates the inconsistencies among items within the test, and the latter approach estimates the inconsistencies within the test takers over time.

It is worth mentioning that the accuracy rate for the purpose of test-retest reliability analysis was calculated differently from the accuracy rate reported in the other parts of the results chapter. In order to cut down the test length and possibly prevent cognitive fatigue from re-doing the same tests, the students were only asked to give grammaticality judgements without having to correct the items in the re-test. Thus accuracy scores could only be based on the grammaticality judgement in the re-test, while the accuracy reported elsewhere (including in the internal reliability analysis) took into account both the judgment and the correction. The difference in the scoring method does not impact the reliability analysis, as the judgment score alone will suffice to inform us of the test-retest reliability of the tests.

In case the reader wants to know the reliability of the tests done by the NS participants, another remark is in order. Only data from Chinese EFL learners were used for the reliability analysis. SPSS could not perform a reliability analysis (either a point-biserial correlation or a Cronbach’s alpha analysis) on the native speaker data. As mentioned above, the vast majority of answers from the native speakers were correct. Items that were totally agreed upon had zero variance, and the reliability analysis could not be conducted on data that had too many items with zero variance, due to the nature of this statistical analysis.

5.3.1 Internal reliability

Two statistical tests were run to compute the internal reliability of the two test instruments in the current study: Cronbach’s alpha reliability estimate and Spearman-Brown split-half reliability estimate. The former method, the most common measure of scale reliability, computes the internal reliability on the basis of the average correlation among items, while the latter method splits the test into random halves and calculates the correlation between the
two sets of scores. Table 46 summarizes the internal reliability estimates by these two methods for both the first round of tests and the second round of the same tests.

**Table 46 Internal reliability of testing instruments**

<table>
<thead>
<tr>
<th>Tests</th>
<th>Cronbach’s alpha</th>
<th>Spearman-Brown</th>
<th>N of participants</th>
<th>N of items included</th>
<th>Items in total</th>
</tr>
</thead>
<tbody>
<tr>
<td>GJT (1st)</td>
<td>.757</td>
<td>.786</td>
<td>104</td>
<td>48</td>
<td>48</td>
</tr>
<tr>
<td>Choice test (1st)</td>
<td>.825</td>
<td>.784</td>
<td>110</td>
<td>31</td>
<td>32</td>
</tr>
<tr>
<td>GJT (2nd)</td>
<td>.769</td>
<td>.893</td>
<td>34</td>
<td>43</td>
<td>48</td>
</tr>
<tr>
<td>Choice test (2nd)</td>
<td>.708</td>
<td>.805</td>
<td>35</td>
<td>28</td>
<td>32</td>
</tr>
</tbody>
</table>

As shown in Table 46, the values of Cronbach’s alpha for the GJT and the article choice test in the first administration were .757 and .825 respectively. A value of .7 to .8 is generally regarded as an acceptable value for Cronbach’s alpha (Field, 2013, p. 709; Larson-Hall, 2010, p. 171). The Spearman-Brown coefficients for the GJT and the article choice test were .786 and .784 respectively, which also indicated good internal consistency. About one-third of the students who took the first round of tests were tested again with the same instruments. For the second administration, the Cronbach’s alpha and Spearman-Brown coefficient of the GJT were .769 and .893 respectively, slightly higher than those for the first administration, and the two reliability estimates of the article choice test were .708 and .805 respectively, roughly similar to the estimates obtained from the first administration.

The reliability statistics of the GJT reported above relate to the whole scale of the test, that is, all the valid 48 items. As mentioned above, the test consists of 44 main items targeting the use of the indefinite article and 4 items targeting the use of the definite article for the purpose of comparison in the generic context. In other words, the test is made up of two sub-scales, one testing the indefinite article and the other testing the definite article. Statisticians suggest that if a test or a questionnaire has several factors (i.e. sub-scales), the reliability analysis should be done separately on these sub-scales (Field, 2013, p. 709). Table 47 displays the reliability statistics for the two sub-scales (i.e. the indefinite items and the definite items) for the GJT test across times.
<table>
<thead>
<tr>
<th>Sub-scales</th>
<th>Cronbach’s alpha</th>
<th>Spearman-Brown</th>
<th>N of participants</th>
<th>N of items included</th>
<th>Items in total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indefinite (1st)</td>
<td>.796</td>
<td>.774</td>
<td>104</td>
<td>44</td>
<td>44</td>
</tr>
<tr>
<td>Definite (1st)</td>
<td>.806</td>
<td>.812</td>
<td>104</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Indefinite (2nd)</td>
<td>.767</td>
<td>.849</td>
<td>34</td>
<td>39</td>
<td>44</td>
</tr>
<tr>
<td>Definite (2nd)</td>
<td>.928</td>
<td>.901</td>
<td>34</td>
<td>4</td>
<td>4</td>
</tr>
</tbody>
</table>

When the 4 items targeting the definite article were separated from the main items targeting the indefinite article, the Cronbach’s alpha and Spearman-Brown coefficient of the indefinite article sub-scale were roughly the same as the two estimates obtained from the whole test for the first administration. The two reliability estimates of the definite sub-scale were both above .8 in the first administration, and above .9 in the second administration, demonstrating very good internal reliability.

In a word, the GJT (either the whole scale or the sub-scales of the GJT) and the article choice test had satisfactory internal reliability at both times, as shown by the two reliability estimates, i.e. Cronbach’s alpha and Spearman-Brown coefficient.

### 5.3.2 External reliability

External reliability was estimated by running statistical analyses on the data of 36 students who did the same tests twice with a one-week gap in between. Two approaches to estimating external reliability will be reported. The first method is to assess the strength of correlation in accuracy scores between the two administrations of the same tests, using Pearson’s correlation coefficient or Spearman’s rho coefficient. The second method is to estimate whether each participant’s amount of change across time was significant, using the binomial test.

#### 5.3.2.1 Pearson’s correlation or Spearman’s rho

Before correlation analyses were performed, exploratory statistics were run to assess whether the data met the assumptions for conducting correlation analyses. The two most important assumptions in this context were linearity and normality. The first assumption pertains to whether the relationship between the two variables is linear, and the second assumption relates to whether a parametric or a non-parametric test should be used.
A scatterplot of the accuracy scores of the GJT across time was computed, which indicated that the relationship between the accuracy scores of the two administrations was linear. Similarly, the relationship between the two scores of the article choice test was also shown as linear. Thus the linearity assumption was met.

To check the normality assumption, descriptive statistics, graphs and tests of normality were used. Descriptive statistics (see Table 48) showed that the group of students who did the same tests twice had very similar performance in terms of accuracy across the two times. The accuracy of the entire group in GJT for the first and the second times was .732 and .722 respectively, and the accuracy in the article choice test was .866 and .892 respectively. The minimum and maximum accuracy scores for the two tasks were exactly the same across time. The distribution of the accuracy scores for the GJT test was relatively symmetric as shown by the rather small skewness value in the table, while the distribution of the accuracy scores for the article choice test was slightly negatively skewed with a clustering of scores at the high end. A rule of thumb to check whether the data are normally distributed is the absolute value of the ratio of skewness to its standard error of skewness (SES). The value should be less than 2 for the data to be normally distributed. Here the value for the article choice retest was below 2, but the value for the first test was above 2 and therefore the scores were not normal. The values for the GJT at both times were well below 2, and therefore did not raise any concerns about the normality of the accuracy scores for the GJT. Apart from the skewness values, histograms, normal probability plots (i.e. Normal Q-Q Plots) and tests of normality (i.e. the Kolmogorov-Smirnov test and the Shapiro-Wilk test) also suggested that the accuracy scores for the GJT test were normally distributed, while the accuracy scores for the article choice test were not normally distributed. Accordingly, parametric statistics (i.e. Pearson’s correlation) can be used on the data of the GJT while non-parametric statistics (i.e. Spearman’s rho) were used on the data of the article choice test, as the latter violated the assumption of normality for parametric tests.

<table>
<thead>
<tr>
<th>Tests</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>Min.</th>
<th>Max.</th>
<th>Skewness</th>
<th>SES</th>
</tr>
</thead>
<tbody>
<tr>
<td>GJT (1st)</td>
<td>34</td>
<td>.732</td>
<td>.108</td>
<td>.519</td>
<td>.942</td>
<td>-.050</td>
<td>.403</td>
</tr>
<tr>
<td>GJT (2nd)</td>
<td>34</td>
<td>.722</td>
<td>.115</td>
<td>.519</td>
<td>.942</td>
<td>.101</td>
<td>.403</td>
</tr>
<tr>
<td>Choice (1st)</td>
<td>35</td>
<td>.866</td>
<td>.119</td>
<td>.563</td>
<td>1</td>
<td>-.854</td>
<td>.398</td>
</tr>
<tr>
<td>Choice (2nd)</td>
<td>35</td>
<td>.892</td>
<td>.093</td>
<td>.688</td>
<td>1</td>
<td>-.660</td>
<td>.398</td>
</tr>
</tbody>
</table>

Table 48 Descriptive statistics of the accuracy of the retest group
Pearson’s correlation coefficient indicated that the accuracy scores of the first administration of the GJT was significantly positively correlated with the scores of the second administration, \( r = .849, 95\% \text{ BCa CI [.711, .933]}, p = .000 \) (see Table 49 for a summary of correlations). Spearman’s rho coefficient (the non-parametric counterpart to Pearson’s correlation coefficient) showed a significant positive correlation between the accuracy scores of the article choice test across the two times, \( r_s = .869, 95\% \text{ BCa CI [.779, .917]}, p = .000 \). Both correlation coefficients demonstrated good external reliability of the tests.

<table>
<thead>
<tr>
<th>Test-retest Correlation</th>
<th>GJT</th>
<th>Choice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson/Spearman</td>
<td>.849**</td>
<td>.869**</td>
</tr>
<tr>
<td>BCa 95% CI(^a)</td>
<td>[.711, .933]</td>
<td>[.779, .917]</td>
</tr>
<tr>
<td>Sig.</td>
<td>.000</td>
<td>.000</td>
</tr>
<tr>
<td>N</td>
<td>34</td>
<td>35</td>
</tr>
</tbody>
</table>

\(^{**}\). Correlation is significant at the 0.01 level (2-tailed).
\(^{a}\). Bias corrected and accelerated bootstrap 95\% Confidence Interval (i.e. BCa 95\% CI) was reported in brackets. Bootstrap results are based on 1000 bootstrap samples.

### 5.3.2.2 Binomial Test

The use of a binomial test is to assess the extent to which the participants responded differently. For the GJT, a participant has a 50% probability of choosing the same answer in the retest as the one he or she provided in the first test, if the participant is choosing randomly. If the participant is making an informed response, his or her probability of choosing the same answer as the first time will be higher than 50%. In the current binomial test, the null hypothesis is that the probability of the participants giving unchanged answers is 50%, and the alternative hypothesis is that the probability of the participants giving unchanged answers is above 50%. If the resulting \( p \) value is below .05, the null hypothesis is rejected and it means that the probability of having unchanged answers is above 50%. To put it in another way, the participant is relatively consistent in his or her answers across time.

The descriptive statistics of the number of changes (regardless of directions) are summarized in Table 50. For the GJT, no participant was 100% consistent in his or her answers across time. The smallest number of changes a participant made was 2, and the largest number of changes was 12. The average number of changes was 6.79, and the median number of changes was 7 (accounting for about 15% of a total of 48 items). The binomial test was conducted on the participant who made the largest number of changes, i.e. 12. The test
resulted in a significant \( p = .000 \), which means we have evidence to reject the null hypothesis: the probability of this participant choosing the same answer in the retest is 50%. In other words, this participant had a higher than 50% probability of choosing the same answer in the retest and therefore he was reliable. Since the most inconsistent participant was shown to be reliable, the rest of the participants who produced a smaller number of changes than this participant can also be regarded as responding reliably.

### Table 50 Descriptive statistics of the number of changes in the retest

<table>
<thead>
<tr>
<th>Tests</th>
<th>( N )</th>
<th>Mean</th>
<th>Median</th>
<th>SD</th>
<th>Min.</th>
<th>Max.</th>
<th>Skewness</th>
<th>SES</th>
</tr>
</thead>
<tbody>
<tr>
<td>GJT</td>
<td>34</td>
<td>6.794</td>
<td>7</td>
<td>3.310</td>
<td>2</td>
<td>12</td>
<td>-.101</td>
<td>.403</td>
</tr>
<tr>
<td>Choice</td>
<td>36</td>
<td>4.917</td>
<td>5</td>
<td>4.080</td>
<td>0</td>
<td>18</td>
<td>1.065</td>
<td>.393</td>
</tr>
</tbody>
</table>

For the article choice test, the same procedures apply. The only difference is that in the null hypothesis the probability of the participants having unchanged answers across time (or giving the same answer in the retest) is 1/3. Each item of the article choice test has three options for the participants to choose from, so the participants’ chance of selecting the same answer as in the first test is 1 out of 3.

In the repeated article choice test, the average number of changes the participants made was 4.92, and the median was 5 (i.e. about 16% of a total of 32 items). There were 5 participants who made no changes of answers in the retest, and there was one participant who made as many as 18 changes in the retest. The binomial test was first run on the participant who made the largest number of changes, i.e. 18, a non-significant \( p = .144 \) indicates that this participant did not respond reliably. In turn, the participant who made the second largest number of changes, i.e. 13, was tested. A significant \( p = .002 \) suggests that this participant responded reliably. Therefore, only one participant was removed from the sample for the article choice test.

By using the above binomial test, we can assess whether the probability of a certain participant giving the same answer in the retest is above expectation (i.e. 50% for GJT and 33% for the article choice test). The results reflect the participants’ test-retest reliability. The binomial test, however, tells us nothing about the change of direction in the participants’ answers. The following Table 51 classifies the change of accuracy for each item in the GJT.

The number of valid participants for the re-test was 34, and each of them answered the same 48-item GJT (with the 4 invalid ungrammatical items in the generic context excluded), which
resulted in a total of 1632 items. As shown in the table, there were 284 items which participants judged incorrectly both times, and 1117 items which participants judged correctly both times. There were 120 items that were initially judged correctly but changed to wrong answers in the re-test and there were 111 items that were first judged incorrectly but later changed to correct answers. The total number of items that were judged differently (i.e. grey cells) accounted for 14.2% of all the items. The percentages of changes in the two directions are close.

**Table 51 Changes in judgment for the GJT**

<table>
<thead>
<tr>
<th>GJT (test 1)</th>
<th>GJT (test 2)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>wrong</td>
<td>correct</td>
</tr>
<tr>
<td>wrong</td>
<td>284 (17.4%)</td>
<td>111 (6.8%)</td>
</tr>
<tr>
<td>correct</td>
<td>120 (7.4%)</td>
<td>1117 (68.4%)</td>
</tr>
<tr>
<td>Total</td>
<td>404 (24.8%)</td>
<td>1228 (75.2%)</td>
</tr>
</tbody>
</table>

Similarly, Table 52 cross-tabulated the participants’ choice of articles in the two administrations of the choice test after an unreliable case had been removed as indicated by the binomial test above. There were 35 valid participants, each doing the 32-item article choice test, resulting in a total of 1119 valid items (due to one missing value). Adding up the shaded cells in Table 52, the total number of changes amount to 14.2% of all the items. There are more shifts between `a` and `the` than shifts between `a` and zero article or `the` and zero article.

**Table 52 Changes in choice of articles (1 outlier removed)**

<table>
<thead>
<tr>
<th>choice (test 1)</th>
<th>choice (test 2)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><code>a</code></td>
<td><code>the</code></td>
</tr>
<tr>
<td><code>a</code></td>
<td>910 (81.3%)</td>
<td>41 (3.7%)</td>
</tr>
<tr>
<td><code>the</code></td>
<td>45 (4.0%)</td>
<td>26 (2.3%)</td>
</tr>
<tr>
<td><code>zero</code></td>
<td>43 (3.8%)</td>
<td>4 (0.4%)</td>
</tr>
<tr>
<td>Total</td>
<td>998 (89.2%)</td>
<td>71 (6.3%)</td>
</tr>
</tbody>
</table>

To sum up, the internal reliability and external reliability of the test instruments were checked by a series of statistical procedures. Cronbach’s alpha and Spearman-Brown split-half reliability estimates indicated that both the GJT and the article choice test had satisfactory internal reliability, with all the reliability coefficients above .7. The external reliability of the
test instruments was assessed by two methods. Pearson’s correlation coefficient or Spearman’s rho coefficient indicated a strong positive correlation in accuracy scores between the test and retest. The binomial test detected one unreliable participant for the article choice test and all the other participants were shown to be consistent in their answers in the repeated GJT and the article choice test. The various statistical procedures used have established that the test instruments in this study were reliable.

5.4 Test results

5.4.1 Accuracy of the indefinite article

This section addressed research question 1: How accurate is university-level Chinese L2 learners’ knowledge of the indefinite article?

To answer this question, the students’ overall accuracy of the GJT and the article choice test was computed, along with the accuracy for each item.

5.4.1.1 Overall accuracy

The overall accuracy in the GJT was 73.6%, the maximum individual accuracy was 95.5% and the minimum individual accuracy was 38.6% (see Table 53). The skewness value, histogram, normal Q-Q plot, and tests of normality (i.e. the Kolmogorov-Smirnov test and the Shapiro-Wilk test) all indicated that the GJT accuracy scores had a normal distribution. The box-plot indicated that there was one outlier, that is, the participant with the lowest accuracy 38.6%. Considering the fact that this lowest score was not drastically different from the second lowest score 45.5%, and that this data point was close to the bulk of the data, this potential outlier was not removed.

The overall accuracy of the article choice test was 86.0%, the maximum individual accuracy was 100% and the minimum individual accuracy was 34.4%. The skewness value, histogram, normal Q-Q plot, and tests of normality all pointed to the fact that the accuracy scores of the article choice test did not have a normal distribution. There was a clustering of scores at the high end (i.e. right hand side of the histogram). The histogram and the boxplot suggested that there were two potential outliers. The two potential outliers both had an accuracy rate of 34.4%, distant from the rest of the data that ranged from 56.3% to 100%. However, when the two potential outliers were checked, nothing suggested that the two participants randomly
selected the answers, and that their article choice accuracy was basically in line with their accuracy in the GJT. So these two data points were kept.

**Table 53 Accuracy of GJT and article choice test**

<table>
<thead>
<tr>
<th>Test</th>
<th>N</th>
<th>Mean</th>
<th>Mdn</th>
<th>SD</th>
<th>95% CI</th>
<th>Min.</th>
<th>Max.</th>
<th>Skewness</th>
<th>SES</th>
</tr>
</thead>
<tbody>
<tr>
<td>GJT</td>
<td>104</td>
<td>.736</td>
<td>.750</td>
<td>.116</td>
<td>[.713, .759]</td>
<td>.386</td>
<td>.955</td>
<td>.237</td>
<td></td>
</tr>
<tr>
<td>Choice</td>
<td>110</td>
<td>.860</td>
<td>.906</td>
<td>.131</td>
<td>[.836, .885]</td>
<td>.344</td>
<td>1.000</td>
<td>-.511</td>
<td>.230</td>
</tr>
</tbody>
</table>

The above table lists the composite GJT score, that is, an overall score of both the grammatical and ungrammatical items. The composite GJT score, however, may have blurred the difference in accuracy between grammatical and ungrammatical items. Table 54 separated the accuracy scores for grammatical and ungrammatical items in the non-generic contexts. The students’ accuracy in judging grammatical items was .843, higher than the accuracy in judging ungrammatical items, that is, .732. The conspicuous difference may largely be attributed to the scoring method. Grammatical items were scored on the basis of judgment alone while ungrammatical items were scored on the basis of both correct judgment and correct correction. If the ungrammatical items were scored in the same way as the grammatical items, that is, by judgement alone, the accuracy for ungrammatical items would be .822, which is very close to the accuracy for grammatical items. The difference indicates that judgment in itself is only a partial reflection of students’ knowledge of the indefinite article, as students may have arrived at the correct judgment by guessing or they may have based their judgment on some other grammatical features in the stimulus. Therefore, the accuracy score for grammatical items is likely to be inflated compared to the score for ungrammatical items under the current scoring method. The ungrammatical items, which asked for correction in addition to judgment, are more indicative of students’ actual knowledge of the indefinite article. So for the following analyses that involve comparisons between different contexts, the accuracy of ungrammatical items will be used, but for comparisons involving the generic context where ungrammatical items are invalid, grammatical items will be used.

A few more words on the descriptive statistics for the accuracy of grammatical and ungrammatical items are apposite. Tests of normality indicated that both scores were not normally distributed. The skewness statistics, histograms and normal Q-Q plots showed that the accuracy scores were both slightly negatively skewed, with a buildup of relatively high scores. The box-plots showed that for either the grammatical items or the ungrammatical
items there were several potential outliers who scored lower than the vast majority of the students, but there was no reason to exclude them from further analysis simply because they had a low accuracy.

**Table 54 Breakdown of GJT scores in non-generic contexts**

<table>
<thead>
<tr>
<th>Test</th>
<th>N</th>
<th>Mean</th>
<th>Mdn</th>
<th>SD</th>
<th>95% CI</th>
<th>Min.</th>
<th>Max.</th>
<th>Skewness</th>
<th>SES</th>
</tr>
</thead>
<tbody>
<tr>
<td>G (20 items)</td>
<td>104</td>
<td>.843</td>
<td>.850</td>
<td>.114</td>
<td>[.821, .865]</td>
<td>.300</td>
<td>1.000</td>
<td>-1.569</td>
<td>.237</td>
</tr>
<tr>
<td>UG (20 items)</td>
<td>104</td>
<td>.732</td>
<td>.750</td>
<td>.161</td>
<td>[.700, .763]</td>
<td>.200</td>
<td>1.000</td>
<td>-.903</td>
<td>.237</td>
</tr>
</tbody>
</table>

An alternative way of looking at learners’ acquisition of the indefinite article is to categorize learners by accuracy. Table 55 displayed the number of learners in each accuracy range (here the overall accuracy is reported).

**Table 55 Learners categorized by accuracy range**

<table>
<thead>
<tr>
<th>Accuracy</th>
<th>GJT</th>
<th>Article Choice</th>
</tr>
</thead>
<tbody>
<tr>
<td>90-100%</td>
<td>8</td>
<td>56</td>
</tr>
<tr>
<td>80-89.9%</td>
<td>18</td>
<td>23</td>
</tr>
<tr>
<td>70-79.9%</td>
<td>42</td>
<td>21</td>
</tr>
<tr>
<td>60-69.9%</td>
<td>24</td>
<td>4</td>
</tr>
<tr>
<td>50-59.9%</td>
<td>9</td>
<td>4</td>
</tr>
<tr>
<td>0-49.9%</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Total</td>
<td>104</td>
<td>110</td>
</tr>
</tbody>
</table>

As shown in Table 55, for the GJT there were only eight learners out of the total 104 learners who achieved 90% or above accuracy, the generally regarded threshold of acquisition (e.g. R. Brown, 1973). By contrast, about half of the learners achieved 90% or above accuracy in the article choice test. If, assuming a more lenient 80% cut-off for acquisition, there were 26 learners (i.e. 25% of the entire group) who achieved 80% or above accuracy in the GJT, and there were 79 learners (i.e. 71.8% of the entire group) in the same accuracy band in the article choice test.

The majority (i.e. 80.8%) of learners were in the 60-89.9% accuracy range for the GJT (with the 70-79.99% accuracy band accounting for the largest proportion of learners, that is, 40.4%), while the majority (i.e. 90.9%) of learners were in the 70-100% accuracy range for the article choice test. There were three learners with an accuracy of below 50% for the GJT.
test. There were two learners with a rather low accuracy of below 50% for the article choice test, despite the overall higher accuracy in the article test than in the GJT.

5.4.1.2 Item-wise accuracy

The accuracy rate of each item for the whole sample, known as the facility value (FV), was computed and can be found in Appendix J. The facility value is commonly used in language assessment to measure the difficulty of an item. FV over .67 means the item is too easy and FV under .33 means the item is too difficult. These cut-off points were used as reference to show how difficult the items were for the university-level students in this study.

The FV in the GJT (consisting of 44 main items) ranged from .15 to .99. There were 5 items that had a facility value of less than .33, which means they were very difficult for the students. There were 9 items that had a facility value in the .33-.66 range. The remaining 30 items (i.e. 68% of all the items) had a facility value of above .66. Four out of the five items with the lowest facility values came from the semantic category of the generic context, which is strong evidence that the generic context is the most difficult context in terms of the use of the indefinite article. This will be followed up later in the analysis by context.

The FV in the article choice test ranged from .53 to 1. No items had a FV of below .33 and there were only 2 items with a FV in the .33-.66 range. All but these two items (i.e. 94% of all the items) had a FV of above .66. There was one item with a FV of 1, which means all the students chose the correct article for this item. The range of facility values revealed that the article choice test was easier than the GJT for the students.

To summarize the main findings for research question 1:

1. The university-level learners achieved an overall accuracy of 73.6% in the GJT and 86.0% in the article choice test. The range of individual accuracy for the GJT and the article choice test were 38.6%-95.5% and 34.4%-100%, respectively. Overall, learners were more accurate in the article choice test than in the GJT.

2. If the composite accuracy score for the GJT is broken down into separate scores for grammatical items and ungrammatical items in the non-generic contexts, there is a difference in accuracy of about 10%. The accuracy for grammatical items was 84.3%, while the accuracy for ungrammatical items was 73.2%. The difference is probably due to the scoring method, as ungrammatical items were scored on the basis of correct judgment and correct
correction, while grammatical items were scored merely on the basis of judgment, the latter of which may have inflated the accuracy score.

3. The distribution of learners in each accuracy band for the GJT and the article choice test differed. Only 7.7% of learners achieved an accuracy of 90% or above in the GJT, compared to 51.8% in the article choice test. The majority of learners were in the 60-89.9% accuracy range for the GJT, while the majority of learners were in the 70-100% accuracy range for the article choice test, which also means the accuracy scores for the article choice test were more negatively skewed than those for the GJT, with more scores clustering at the high end.

4. The facility values of test items also indicated that the GJT was more difficult for learners than the article choice test. The facility value of items in the GJT ranged from .15 to .99, while the facility value of items in the article choice test ranged from .53 to 1. There were 5 difficult items (i.e. FV below .33) and 9 moderately difficult items (i.e. FV between .33 and .66) in the GJT. By contrast, there were no difficult items and only 2 moderately difficult items in the article choice test. Easy items (i.e. FV above .66) accounted for 68% of the GJT and 94% of the article choice test, respectively.

5.4.2 The effect of syntactic positions

This section will mainly answer research question 3.1: How are the grammatical functions of NPs in a sentence (i.e. subject, object and complement) related to learners’ (mis)use of the indefinite article? Data from the GJT was analysed to address this question.

First, the accuracy scores for ungrammatical items targeting noun phrases in three different syntactic contexts were calculated and the difference in accuracy across contexts was compared. This analysis only involved items in the non-generic context, as the generic context contained valid items in the grammatical form only. Following the first analysis, the accuracy scores for grammatical items in different syntactic contexts were compared and this second analysis included both generic and non-generic contexts.

5.4.2.1 First analysis: ungrammatical items

In calculating the accuracy scores for the subject position, two semantic contexts (i.e. specific and non-specific contexts) were collated, and in calculating the accuracy scores for the object position, two semantic contexts (i.e. specific and non-specific contexts) were combined. For the complement position, only the non-specific context was possible. Refer to Appendix F for
items of the GJT categorized by contexts. Table 56 shows the descriptive statistics of accuracy scores for the three syntactic positions (excluding generic contexts).

<table>
<thead>
<tr>
<th>Syntactic positions</th>
<th>N</th>
<th>N of items</th>
<th>Mean</th>
<th>Mdn</th>
<th>SD</th>
<th>Min.</th>
<th>Max.</th>
<th>Skewness</th>
<th>SES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subject</td>
<td>104</td>
<td>8</td>
<td>.712</td>
<td>.750</td>
<td>.247</td>
<td>.000</td>
<td>1</td>
<td>-1.008</td>
<td>.237</td>
</tr>
<tr>
<td>Object</td>
<td>104</td>
<td>8</td>
<td>.653</td>
<td>.625</td>
<td>.209</td>
<td>.000</td>
<td>1</td>
<td>-.346</td>
<td>.237</td>
</tr>
<tr>
<td>Complement</td>
<td>104</td>
<td>4</td>
<td>.930</td>
<td>1</td>
<td>.137</td>
<td>.5</td>
<td>1</td>
<td>-1.859</td>
<td>.237</td>
</tr>
</tbody>
</table>

The accuracy score for the complement position was higher than for both the subject and the object positions, while the object position had the lowest accuracy score among the three. The normal Q-Q plots and tests of normality (not displayed here) indicated that the scores for all the three syntactic positions were not normally distributed, though the scores for the object position were less skewed than for the other two positions, as indicated by the skewness statistic.

Due to the violation of the normality assumption underlying parametric tests, the non-parametric Friedman’s ANOVA was run to explore whether there was a difference among the three syntactic contexts. Friedman’s test revealed a significant difference among the three contexts, $\chi^2 (2, N = 104) = 99.841, p = .000$. In Table 57, pairwise comparisons further showed that the accuracy in the object position was significantly lower than in the complement position, $T = -1.255, p = .000, r = -.627$ (i.e. a large effect size). The accuracy in the subject position was significantly lower than in the complement position, $T = -.909, p = .000, r = -.454$ (i.e. a medium effect size). The accuracy in the object position was significantly lower than in the subject position, $T = -.346, p = .038, r = -.173$ (i.e. a small effect size).

The above analysis showed that the accuracy in the complement position was markedly higher than that in the subject position and in the object position. But there was one potential
problem with this analysis. The subject position and the object position each had both the specific context and the non-specific context and therefore the accuracy scores for these two positions combined specific and non-specific items. The complement position, however, only had non-specific items, which is an inherent grammatical feature of complement. Therein lies the problem. The semantic factor of specificity was counter-balanced in the case of the subject position and the object position, but not in the case of the complement. It is necessary to control for the factor of specificity to further determine whether syntactic position made a genuine difference in learners’ accuracy. Thus, the same analysis was carried out on non-specific items only, eliminating the potential confounding factor of specificity. Table 58 presents the descriptive statistics for accuracy in the three syntactic positions with items all in the non-specific context.

<table>
<thead>
<tr>
<th>Syntactic positions</th>
<th>N</th>
<th>N of items</th>
<th>Mean</th>
<th>Mdn</th>
<th>SD</th>
<th>Min.</th>
<th>Max.</th>
<th>Skewness</th>
<th>SES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subject</td>
<td>104</td>
<td>4</td>
<td>.673</td>
<td>.750</td>
<td>.263</td>
<td>0</td>
<td>1</td>
<td>-.675</td>
<td>.237</td>
</tr>
<tr>
<td>Object</td>
<td>104</td>
<td>4</td>
<td>.512</td>
<td>.500</td>
<td>.259</td>
<td>0</td>
<td>1</td>
<td>.275</td>
<td>.237</td>
</tr>
<tr>
<td>Complement</td>
<td>104</td>
<td>4</td>
<td>.930</td>
<td>1</td>
<td>.137</td>
<td>.500</td>
<td>1</td>
<td>-1.859</td>
<td>.237</td>
</tr>
</tbody>
</table>

Table 58 Accuracy across syntactic positions (non-specific)

<table>
<thead>
<tr>
<th>Syntactic contexts</th>
<th>Test Statistic</th>
<th>Std. Error</th>
<th>Std. Test Statistic</th>
<th>Sig.</th>
<th>Adj. Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Object-Complement</td>
<td>-1.312</td>
<td>.139</td>
<td>-9.465</td>
<td>.000</td>
<td>.000</td>
</tr>
<tr>
<td>Subject-Complement</td>
<td>-.851</td>
<td>.139</td>
<td>-6.136</td>
<td>.000</td>
<td>.000</td>
</tr>
<tr>
<td>Object-Subject</td>
<td>-.462</td>
<td>.139</td>
<td>-3.328</td>
<td>.001</td>
<td>.003</td>
</tr>
</tbody>
</table>

Table 59 Pairwise comparisons of accuracy across syntactic positions (non-specific)

After having controlled for the semantic context, the accuracy in the complement position was still plainly higher than in either the subject or object positions. The non-parametric Friedman’s ANOVA indicated a significant difference among the three syntactic positions, $\chi^2 (2, N = 104) = 113.150, p = .000$. In Table 59, pairwise comparisons further showed that the accuracy in the complement position was significantly higher than that in the object position, $T = -1.312, p = .000, r = -.656$ (i.e. a large effect size), and also significantly higher than that in the subject position, $T = -.851, p = .000, r = -.425$ (i.e. a medium effect size). The accuracy in the object position was significantly lower than that in the subject position, but this comparison will not be discussed here, as the main concern here was to determine whether
the accuracy in the complement position was still significantly higher than the other two syntactic positions when the semantic context was the same, and the answer was positive.

5.4.2.2 Second analysis: grammatical items

It has been mentioned above that context analysis would only use the accuracy scores for the ungrammatical items instead of grammatical items, as the scores of the former are more indicative of learners’ actual knowledge of the indefinite article. The second analysis here, however, involved grammatical items, because the generic context only had valid items in the grammatical form. This analysis was intended to include all the semantic contexts (i.e. both generic and non-generic contexts) across different syntactic positions. Therefore, the accuracy scores for the subject position included three semantic contexts (i.e. specific, non-specific, and generic contexts), rather than two semantic contexts in the first analysis. The accuracy scores for the object position included two semantic contexts (i.e. specific and non-specific contexts), and the complement position only existed in the non-specific context, which is the same as in the first analysis. Table 60 shows the descriptive statistics of accuracy scores for the three syntactic contexts. The accuracy scores for the subject position including the generic context (i.e. resulting in 12 items altogether) and the accuracy scores for the subject position excluding the generic context (i.e. resulting in 8 items altogether) were listed separately for the purpose of comparison.

<table>
<thead>
<tr>
<th>Syntactic positions</th>
<th>N</th>
<th>N of items</th>
<th>Mean</th>
<th>Mdn</th>
<th>SD</th>
<th>Min.</th>
<th>Max.</th>
<th>Skewness</th>
<th>SES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subject a</td>
<td>104</td>
<td>12</td>
<td>.623</td>
<td>.583</td>
<td>.151</td>
<td>.083</td>
<td>1</td>
<td>.032</td>
<td>.237</td>
</tr>
<tr>
<td>Subject b</td>
<td>104</td>
<td>8</td>
<td>.823</td>
<td>.875</td>
<td>.175</td>
<td>.125</td>
<td>1</td>
<td>-1.661</td>
<td>.237</td>
</tr>
<tr>
<td>Object</td>
<td>104</td>
<td>8</td>
<td>.792</td>
<td>.875</td>
<td>.157</td>
<td>.375</td>
<td>1</td>
<td>-.455</td>
<td>.237</td>
</tr>
<tr>
<td>Complement</td>
<td>104</td>
<td>4</td>
<td>.983</td>
<td>1</td>
<td>.072</td>
<td>.500</td>
<td>1</td>
<td>-4.672</td>
<td>.237</td>
</tr>
</tbody>
</table>

Subject a: items in the subject position including the generic context
Subject b: items in the subject position excluding the generic context

The accuracy scores of grammatical items excluding the generic context followed the same pattern as the accuracy scores of ungrammatical items. The complement position had the highest accuracy and the object position had the lowest accuracy among the three syntactic positions, though all the three scores were respectively higher than in the case of ungrammatical items, for reasons mentioned earlier. When the generic context was included in the items of the subject position, the subject position had the lowest accuracy, altering the
previous order of accuracy. Apparently, it was the semantic factor of genericity rather than the subject position itself that was affecting the accuracy. When the generic context was factored out, the object position had a lower accuracy than the subject position, both in the case of grammatical items and ungrammatical items.

Another observation that might be worth mentioning is that when the non-parametric Friedman’s ANOVA was run on the accuracy scores of grammatical items to explore whether there was a difference among the three syntactic contexts (excluding the generic context to parallel the same analysis involving ungrammatical items). Friedman’s test revealed a significant difference among the three contexts, $\chi^2 (2, N = 104) = 110.809, p = .000$. Further pairwise comparisons (see Table 61) showed that the accuracy in the complement position was significantly higher than both the object position, $T = -1.212, p = .000, r = -.606$ (a large effect size), and the subject position, $T = 1.010, p = .000, r = .505$ (a large effect size), but the accuracy in the object position was not significantly lower than that in the subject position, $T = -.202, p = .436, r = -.101$ (a small effect size). The lack of significant difference between the subject and object positions was different from the same analysis for the ungrammatical items. The difference may be attributed to the fact that the scoring method of the grammatical items increased the accuracy scores generally, which in turn minimized the difference between the object position and the subject position.

Table 61 Pairwise comparisons of accuracy across syntactic positions (non-generic)

<table>
<thead>
<tr>
<th>Syntactic contexts</th>
<th>Test Statistic</th>
<th>Std. Error</th>
<th>Std. Test Statistic</th>
<th>Sig.</th>
<th>Adj. Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Object-Complement</td>
<td>-1.212</td>
<td>.139</td>
<td>-8.737</td>
<td>.000</td>
<td>.000</td>
</tr>
<tr>
<td>Subject-Complement</td>
<td>1.010</td>
<td>.139</td>
<td>7.280</td>
<td>.000</td>
<td>.000</td>
</tr>
<tr>
<td>Object-Subject</td>
<td>-.202</td>
<td>.139</td>
<td>-1.456</td>
<td>.145</td>
<td>.436</td>
</tr>
</tbody>
</table>

To summarize the main findings for research question 3.1:

1. There was a significant difference in learners’ accuracy of the indefinite article with noun phrases in different syntactic positions (i.e. subject, object, and complement). The complement position had by far the highest accuracy score, i.e. 93% in the case of ungrammatical items and 98% in the case of grammatical items. The generic context aside, the object position had the lowest accuracy among the three syntactic positions, that is, 65% in the case of ungrammatical items and 79% in the case of grammatical items.
2. The accuracy in the complement position was significantly higher than in both the subject and object positions, when the comparison was within the non-specific context, the only possible semantic context for the complement position, and it was also significantly higher than in the subject position and in the object position, when these two positions contained both specific and non-specific contexts.

3. When the generic context was included in the scores for the subject position, the subject position had the lowest accuracy, i.e. 62% in the case of grammatical items. The inclusion of the generic context dragged the accuracy scores for the subject position from 82% to 62%, indicating that what really affected learners’ accuracy in the subject position was the semantic factor of genericity rather than the syntactic position itself.

4. The mean accuracy scores for the three syntactic positions followed the same order, no matter whether we used the scores for the ungrammatical items or the scores for the grammatical items. Setting aside the generic context, the syntactic positions ranked in descending order of accuracy were: complement, subject, and object.

5. When the generic context was factored out, the accuracy in the object position was slightly lower than that in the subject position. The difference was significant in the case of ungrammatical items, but not significant in the case of grammatical items, the effect sizes both being small, i.e. just over -.1.

5.4.3 The effect of article semantics

This section will analyse data from the GJT to answer research question 4: How are the semantic contexts of NPs (i.e. specific, non-specific, and generic contexts) related to learners’ (mis)use of the indefinite article?

There will be separate analyses conducted on ungrammatical items and grammatical items respectively. The first analysis compares the accuracy between specific and non-specific contexts, and the second analysis compares the accuracy between generic and non-generic contexts. Stated earlier, the generic context only contains valid items in the grammatical form, and therefore the analysis involving the generic context will have to use scores for the grammatical items instead of ungrammatical items.
5.4.3.1 First analysis: ungrammatical items

First, the mean accuracy scores of ungrammatical items in the non-generic contexts (i.e. specific and non-specific contexts) were calculated. The specific and non-specific contexts included both noun phrases in the subject position and in the object position, and the number of items in different syntactic positions was equal. Table 62 shows the descriptive statistics for the accuracy scores in specific and non-specific contexts crossed over by syntactic positions.

<table>
<thead>
<tr>
<th>Semantic/syntactic contexts</th>
<th>(N)</th>
<th>(N) of items</th>
<th>Mean</th>
<th>Mdn</th>
<th>SD</th>
<th>Min.</th>
<th>Max.</th>
<th>Skewness</th>
<th>SES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specific subject</td>
<td>104</td>
<td>4</td>
<td>.750</td>
<td>.750</td>
<td>.304</td>
<td>0</td>
<td>1</td>
<td>-.994</td>
<td>.237</td>
</tr>
<tr>
<td>Specific object</td>
<td>104</td>
<td>4</td>
<td>.793</td>
<td>.750</td>
<td>.242</td>
<td>0</td>
<td>1</td>
<td>-1.398</td>
<td>.237</td>
</tr>
<tr>
<td>Non-specific subject</td>
<td>104</td>
<td>4</td>
<td>.673</td>
<td>.750</td>
<td>.263</td>
<td>0</td>
<td>1</td>
<td>-.675</td>
<td>.237</td>
</tr>
<tr>
<td>Non-specific object</td>
<td>104</td>
<td>4</td>
<td>.512</td>
<td>.500</td>
<td>.259</td>
<td>0</td>
<td>1</td>
<td>.275</td>
<td>.237</td>
</tr>
</tbody>
</table>

For ease of understanding, an example for each of the four contexts listed in Table 62 is provided below.

Specific subject:

Item 44: Lawyer was hired to help him. Guess who the lawyer is. (Correction: a lawyer)

Specific object:

Item 27: Roy met the classmate yesterday. I don’t know which classmate he met. (Correction: a classmate)

Non-specific subject:

Item 41: Girl will be chosen to perform on stage next month. I don't know which girl. (Correction: a girl)

Non-specific object:

Item 3: Go to ask teacher. Any teacher will be able to answer your question. (Correction: a teacher)
As shown in Table 62, the non-specific object context had the lowest accuracy, i.e. 51.2%, and the specific object context had the highest accuracy, i.e. 79.3%. In terms of semantics, the accuracy in the two non-specific contexts was lower than in the two specific contexts, while the accuracy for the object position was not always lower than that for the subject position, depending on the semantic context.

To explore the effects of specificity and syntactic positions as well as their interaction, a factorial repeated measures ANOVA was used. There were two independent variables in question, i.e. semantic specificity and syntactic positions. Each factor has two levels, that is, specificity or non-specificity either in the subject position or in the object position. The dependent variable is learners’ accuracy rate, hence, a two-way repeated measures design.

To run a repeated measures ANOVA, a number of assumptions have to be met. One of the assumptions is sphericity. For a repeated measures variable with only two levels, sphericity is met (Field, 2013, p. 561). In the current study, both of the two independent variables had only two levels and the sphericity assumption was met without having to be checked. There is another assumption underlying the ANOVA procedures, that is, the normality assumption. An inspection of the skewness statistics, histograms and normal Q-Q plots revealed that data in the two specific contexts were negatively skewed, while data in the two non-specific contexts were approximately normally distributed. In other words, the current data could not entirely meet the normality assumption. But consequences of the violation of the normality assumption are less severe for a large sample than for a smaller sample. The $F$-test (i.e. a type of statistical test including ANOVA in which the test statistic has an $F$-distribution under the null hypothesis) is regarded as robust against departures from the normality assumption (particularly when the sample size is large) (Wild & Seber, 1999, p. 440). The sample size of the current study could be deemed large enough to warrant the use of ANOVA. Besides, there is no non-parametric counterpart to the factorial repeated measures ANOVA in SPSS. The non-parametric alternative is technically constrained. Therefore, a two-way repeated measures ANOVA was run.

The ANOVA analysis resulted in a highly significant main effect of semantic specificity on the accuracy of the indefinite article, $F(1, 103) = 84.073, p = .000$ (as shown in Table 63). The effect size (i.e. the value of partial eta squared) was .449, indicating a very large effect. There was also a significant main effect of syntactic position on the accuracy of the indefinite article, $F(1, 103) = 5.506, p = .021$, partial eta squared = .051 (i.e. a small effect size). Apart
from the main effects, there was a highly significant interaction effect between semantic specificity and syntactic positions, $F(1, 103) = 28.224$, $p = .000$, partial eta squared = .215 (i.e. a large effect).

Table 63 Tests of within-subjects effects (semantic specificity and syntactic positions)

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>Mean Square</th>
<th>$F$</th>
<th>Sig.</th>
<th>Partial Eta Squared</th>
</tr>
</thead>
<tbody>
<tr>
<td>Semantic specificity</td>
<td>1</td>
<td>3.335</td>
<td>84.073</td>
<td>.000</td>
<td>.449</td>
</tr>
<tr>
<td>Syntactic positions</td>
<td>1</td>
<td>.361</td>
<td>5.506</td>
<td>.021</td>
<td>.051</td>
</tr>
<tr>
<td>Specificity*Position</td>
<td>1</td>
<td>1.085</td>
<td>28.224</td>
<td>.000</td>
<td>.215</td>
</tr>
</tbody>
</table>

Table 64 shows the pairwise comparisons for the main effect of semantic specificity corrected using a Bonferroni adjustment. Contrasts revealed that if we ignore the factor of syntactic positions, there was a significant difference in accuracy between the semantically specific and semantically non-specific contexts, $p = .000$, $r = .670$ (a large effect size). Learners were more accurate in a semantically specific context than in a semantically non-specific context. With 95% confidence, it is estimated that learners’ accuracy in the specific context, on average, is somewhere between 14.0% and 21.8% higher than the accuracy in the non-specific context, the mean difference being 17.9%. For example, learners were more accurate in specific items (e.g. Lawyer was hired to help him. Guess who the lawyer is.) than in non-specific items (e.g. Restaurant will be booked for Mr. Peterson. But I don't know which one.)

Table 64 Pairwise comparisons for the main effect of semantic specificity

<table>
<thead>
<tr>
<th>(I) specificity</th>
<th>(J) specificity</th>
<th>Mean Difference (I-J)</th>
<th>SE</th>
<th>Sig.</th>
<th>95% CI for Difference</th>
<th>LB</th>
<th>UB</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. specific</td>
<td>2. non-specific</td>
<td>.179*</td>
<td>.020</td>
<td>.000</td>
<td>.140</td>
<td>.218</td>
<td></td>
</tr>
<tr>
<td>2. non-specific</td>
<td>1. specific</td>
<td>-.179*</td>
<td>.020</td>
<td>.000</td>
<td>-.218</td>
<td>-.140</td>
<td></td>
</tr>
</tbody>
</table>

Note. Based on estimated marginal means
* The mean difference is significant at the .05 level.
b. Adjustment for multiple comparisons: Bonferroni.

Table 65 displays the pairwise comparisons for the main effect of syntactic positions. The results indicated that if we ignore the factor of semantic specificity, there was significant difference in accuracy between noun phrases in the subject position and in the object position, $p = .021$, $r = .225$ (i.e. a small effect size). With 95% confidence, it is estimated that
learners’ accuracy in the subject position, on average, is somewhere between 0.9% and 10.9% higher than the accuracy in the object position, the mean difference being 5.9%.

Table 65 Pairwise comparisons for the main effect of syntactic positions

<table>
<thead>
<tr>
<th>(I) position</th>
<th>(J) position</th>
<th>Mean Difference (I-J)</th>
<th>SE</th>
<th>Sig.</th>
<th>95% CI for Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. subject</td>
<td>2. object</td>
<td>.059*</td>
<td>.025</td>
<td>.021</td>
<td>.009,.109</td>
</tr>
<tr>
<td>2. object</td>
<td>1. subject</td>
<td>-.059*</td>
<td>.025</td>
<td>.021</td>
<td>-.109,-.009</td>
</tr>
</tbody>
</table>

*Note.* Based on estimated marginal means

*. The mean difference is significant at the .05 level.

b. Adjustment for multiple comparisons: Bonferroni.

In addition to the main effects of semantic specificity and syntactic positions on learners’ accuracy of the indefinite article, there was a significant interaction effect between specificity and syntactic positions, $F(1, 103) = 28.224, p = .000$ (as shown in Table 63). Syntactic positions had different effects on the accuracy of the indefinite article depending on the value of specificity. As shown in the profile plot below (Figure 6), in a semantically specific context, the accuracy with noun phrases in the object position was slightly higher than that in the subject position; in a semantically non-specific context, the accuracy with noun phrases in the object position was markedly lower than that in the subject position. The difference in the first contrast was not significant ($T = 764.000, p = .121$), while the difference in the second contrast was significant ($T = 2259.000, p = .000$). On the other hand, regardless of whether the noun phrase was in the subject position or in the object position, the accuracy in the specific context was consistently higher than that in the non-specific context, although the discrepancy in accuracy between the specific context and the non-specific context was much larger in the case of the object position than in the case of the subject position.
5.4.3.2 Second analysis: grammatical items

The mean accuracy scores of grammatical items between the generic context and the non-generic context were compared. The non-generic context included all the contexts in the GJT except the generic context, that is, a combination of specific contexts and non-specific contexts. Table 66 presents the mean accuracy in contexts divided by the semantic feature of genericity.

**Table 66 Descriptive statistics for accuracy in generic and non-generic contexts**

<table>
<thead>
<tr>
<th>Semantic contexts</th>
<th>N</th>
<th>N of items</th>
<th>Mean</th>
<th>Mdn</th>
<th>SD</th>
<th>Min.</th>
<th>Max.</th>
<th>Skewness</th>
<th>SES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Generic</td>
<td>104</td>
<td>4</td>
<td>.224</td>
<td>0</td>
<td>.289</td>
<td>0</td>
<td>1</td>
<td>1.131</td>
<td>.237</td>
</tr>
<tr>
<td>Non-generic</td>
<td>104</td>
<td>20</td>
<td>.843</td>
<td>.850</td>
<td>.114</td>
<td>0.3</td>
<td>1</td>
<td>-1.569</td>
<td>.237</td>
</tr>
</tbody>
</table>

The accuracy score for the generic context was 22.4%, much lower than the accuracy score for the non-generic context 84.3%. The median of the accuracy scores for the generic context was 0, which means that at least half of all the participants scored zero in this context. The skewness statistics and histograms (not displayed here) showed that the scores for the generic context were positively skewed (i.e. scores clustered to the left at the low values), while the
scores for the non-generic context were negatively skewed (i.e. scores clustered at the high end).

The skewness statistics, histograms, normal Q-Q plots and tests of normality all pointed to the non-normality of the data. Therefore, the non-parametric Wilcoxon signed-rank test was used to compare the accuracy in the generic context and the non-generic context. The accuracy in the generic context (Mdn = 0) was significantly lower than in the non-generic context (Mdn = .850), \( T = 5326.500, z = 8.721, p = .000, r = .605 \) (i.e. a large effect size).

The above comparison of accuracy between the generic and non-generic contexts subsumed all the specific and non-specific contexts regardless of different syntactic positions under the rubric of non-generic context. The generic context only had noun phrases in the subject position, while the non-generic context had noun phrases in the subject, object or complement position. A stricter comparison could be carried out between the two semantic contexts with noun phrases all in the subject position, eliminating the potential confounding factor of syntactic position. To facilitate understanding, here are two examples to illustrate the contexts. Following the examples are the descriptive statistics for accuracy in the subject position summarized in Table 67.

Generic subject:

Item 6: A hammer is very useful in modern life.

Non-generic subject:

Item 11: A restaurant will be booked for Mr. Peterson. But I don’t know which one.

<table>
<thead>
<tr>
<th>Semantic contexts</th>
<th>N</th>
<th>N of items</th>
<th>Mean</th>
<th>Mdn</th>
<th>SD</th>
<th>Min.</th>
<th>Max.</th>
<th>Skewness</th>
<th>SES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Generic (subject)</td>
<td>104</td>
<td>4</td>
<td>.224</td>
<td>0</td>
<td>.289</td>
<td>0</td>
<td>1</td>
<td>1.131</td>
<td>.237</td>
</tr>
<tr>
<td>Non-generic (subject)</td>
<td>104</td>
<td>8</td>
<td>.823</td>
<td>.875</td>
<td>.175</td>
<td>.125</td>
<td>1</td>
<td>-1.661</td>
<td>.237</td>
</tr>
</tbody>
</table>

Students’ accurate use of the indefinite article with noun phrases in the subject non-generic context was not very different from that in the non-generic context with mixed syntactic positions. Similarly, the Wilcoxon signed-rank test revealed that the accuracy in the generic context (Mdn = 0) was significantly lower than that in the non-generic context (Mdn = .875), \( T = 4711.000, z = 8.430, p = .000, r = .585 \) (i.e. a large effect size). This analysis confirmed
that it is the semantic meaning of genericity, rather than the subject position, that was
difficult for learners.

To summarize the main findings in this section,

1. The two-way repeated measures ANOVA analyses indicated a significant interaction effect
between semantic specificity and syntactic positions. In a semantically specific context, the
accuracy in the object position was slightly higher than that in the subject position; in a
semantically non-specific context, the accuracy in the object position was significantly lower
than that in the subject position.

2. Regardless of whether the noun phrase was in the subject position or in the object position,
the accuracy in the semantically specific context was higher than that in the semantically non-
specific context.

3. The accuracy in the generic context was significantly lower than that in the non-generic
context. The accuracy for the generic context was 22.4% and the accuracy for the non-generic
context was 84.3%. The large discrepancy between the generic context and the non-generic
context still existed even when the non-generic context only included noun phrases in the
subject position to parallel the generic context where noun phrases only existed in the subject
position. This confirmed that it was the semantic feature of genericity rather than the subject
position that made this context most difficult.

5.4.4 The effect of specificity

This section will analyze data from the article choice test to address research question 5 and
its three sub-questions:

How are the semantics of ‘specificity’ related to learners’ (mis)use of the indefinite article?

(1) Is the semantic specificity of NPs linked to learners’ use of the indefinite article?

(2) Is the pragmatic specificity of NPs linked to learners’ use of the indefinite article?

(3) Is the explicitly stated knowledge (ESK) of NPs linked to learners’ use of the indefinite
article?

To answer the first two sub-questions, a two-way repeated measures ANOVA will be used to
explore the effect of semantic specificity and pragmatic specificity on the accuracy of the
indefinite article. To answer the third sub-question, the accuracy in the [+ESK] context and [-ESK] context will be compared. Then repeated measures ANOVA will be used to further explore the potential interaction between the effect of semantic specificity and ESK.

5.4.4.1 Semantic and pragmatic specificity

A two-way repeated measures ANOVA was computed to explore whether learners’ use of the indefinite article is related to the contexts characterized by two kinds of specificity. There were two independent variables in question, i.e. semantic specificity (abbreviated as [sem sp]) and pragmatic specificity (abbreviated as [prag sp]). Each factor has two levels, that is, specific or nonspecific, either semantically or pragmatically. The dependent variable is learners’ accuracy rate. Table 68 shows that learners’ accuracy was generally high in all the four contexts, all above 80% accuracy rate. The accuracy did not differ much across the contexts, the highest being .875 in the [+sem sp, +prag sp] context and the lowest being .848 in the [-sem sp, -prag sp] context. Refer to Appendix G for items of the article choice test categorized by semantic contexts.

<table>
<thead>
<tr>
<th>Semantic contexts</th>
<th>N</th>
<th>N of items</th>
<th>Mean</th>
<th>Mdn</th>
<th>SD</th>
<th>Min.</th>
<th>Max.</th>
<th>Skewness</th>
<th>SES</th>
</tr>
</thead>
<tbody>
<tr>
<td>[+sem sp, +prag sp]</td>
<td>110</td>
<td>8</td>
<td>.875</td>
<td>.875</td>
<td>.156</td>
<td>.250</td>
<td>1</td>
<td>-1.526</td>
<td>.230</td>
</tr>
<tr>
<td>[+sem sp, - prag sp]</td>
<td>110</td>
<td>8</td>
<td>.851</td>
<td>.875</td>
<td>.151</td>
<td>.250</td>
<td>1</td>
<td>-1.120</td>
<td>.230</td>
</tr>
<tr>
<td>[- sem sp, +prag sp]</td>
<td>110</td>
<td>8</td>
<td>.868</td>
<td>.875</td>
<td>.177</td>
<td>.125</td>
<td>1</td>
<td>-1.921</td>
<td>.230</td>
</tr>
<tr>
<td>[- sem sp, - prag sp]</td>
<td>110</td>
<td>8</td>
<td>.848</td>
<td>.875</td>
<td>.165</td>
<td>.125</td>
<td>1</td>
<td>-1.429</td>
<td>.230</td>
</tr>
</tbody>
</table>

The assumptions of ANOVA were checked. The sphericity assumption was met as the two independent variables had only two levels. The normality assumption was violated as the data in each of the four contexts was negatively skewed with the majority of the scores clustering at the high end. For reasons already given above, the violation of the normality assumption should not deter us from using ANOVA. Table 69 shows the results of the two-way repeated measures ANOVA.

The effect of semantic specificity on the accuracy of the use of the indefinite article was not significant, $F(1, 109) = .169, p = .682$, but there was a significant main effect of pragmatic specificity, $F(1, 109) = 4.693, p = .032$, partial eta-squared ($\eta^2_p$) = .041, indicating a small
There was no significant interaction effect between semantic specificity and pragmatic specificity, $F(1, 109) = .035, p = .852$.

**Table 69 Tests of within-subjects effects (semantic and pragmatic specificity)**

<table>
<thead>
<tr>
<th>Source</th>
<th>$df$</th>
<th>Mean Square</th>
<th>$F$</th>
<th>Sig.</th>
<th>Partial Eta Squared</th>
</tr>
</thead>
<tbody>
<tr>
<td>Semantic specificity</td>
<td>1</td>
<td>.003</td>
<td>.169</td>
<td>.682</td>
<td>.002</td>
</tr>
<tr>
<td>Pragmatic specificity</td>
<td>1</td>
<td>.054</td>
<td>4.693</td>
<td>.032</td>
<td>.041</td>
</tr>
<tr>
<td>Semantic specificity*Pragmatic specificity</td>
<td>1</td>
<td>.000</td>
<td>.035</td>
<td>.852</td>
<td>.000</td>
</tr>
</tbody>
</table>

**Table 70 Pairwise comparisons for the main effect of pragmatic specificity**

<table>
<thead>
<tr>
<th>(I) prag sp</th>
<th>(J) prag sp</th>
<th>Mean Difference (I-J)</th>
<th>SE</th>
<th>Sig.</th>
<th>95% CI for Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 [+prag sp]</td>
<td>2 [- prag sp]</td>
<td>.022*</td>
<td>.010</td>
<td>.032</td>
<td>.002 - .042</td>
</tr>
<tr>
<td>2 [- prag sp]</td>
<td>1 [+prag sp]</td>
<td>-.022*</td>
<td>.010</td>
<td>.032</td>
<td>-.042 - .002</td>
</tr>
</tbody>
</table>

*Note.* Based on estimated marginal means

* The mean difference is significant at the .05 level.

b. Adjustment for multiple comparisons: Bonferroni.

Table 70 shows the pairwise comparisons for the main effect of pragmatic specificity corrected using a Bonferroni adjustment. The results indicated that if we ignore the factor of semantic specificity, there was a significant difference in accuracy between the pragmatically specific and pragmatically non-specific contexts, $p = .032$ (as shown previously), $r = .203$ (indicating a small effect). Learners were more accurate in a pragmatically specific context requiring $a$. The mean difference in accuracy between a pragmatically specific context and a pragmatically non-specific context was 2.2%. Here are two examples to illustrate pragmatic specificity.

**Pragmatically specific:**

Item 42. Between friends

Mary: What did you do last Sunday?

Paul: I cleaned my apartment in the morning. After lunch I read (a, the, --) book. It was so interesting that I kept on reading for the whole afternoon and whole night. I think you will love it. It’s called Wolf Hall. It has won a lot of prizes.
Pragmatically non-specific:

Item 9. Between friends
Cindy: Did you have a good weekend?
John: Not bad. I watched (a, the, --) movie on Saturday. And I finished my homework on Sunday. How about you?
Cindy: I did a lot of shopping.

Pragmatic specificity is manifested in the continuation of a certain topic. If the speaker continues to talk about the referent (i.e. the target noun phrase in the test), the context is pragmatically specific; if the speaker does not intend to elaborate on the referent and continues to mention something else, the context is pragmatically non-specific. The higher accuracy in a pragmatically specific context than in a pragmatically non-specific context suggests that learners were more accurate in using the indefinite article with a referent that was a salient topic of the discourse as opposed to a referent that was merely mentioned in passing.

In addition, Figure 7 shows that the accuracy in a pragmatically specific context was always higher than that in a pragmatically non-specific context, regardless of whether the context was semantically specific or not. By contrast, the accuracy in a semantically specific context was not always higher than that in a semantically non-specific context. When the value of pragmatic specificity was controlled, the accuracy in a semantically specific context was insignificantly higher than that in a semantically non-specific context.
5.4.4.2 Explicitly stated knowledge (ESK)

Apart from semantic specificity and pragmatic specificity, the current study also explored whether ‘explicitly stated knowledge of the referent’ (abbreviated as ESK) has an effect on the accuracy of learners’ use of the indefinite article, as suggested by previous studies. Contexts possessing the ESK feature are always pragmatically specific, as ‘explicitly stated knowledge of the referent’ is a realization of pragmatic specificity, or in other words, discourse salience (already discussed in the literature review chapter). But the feature of ESK is independent of semantic specificity. So the [+ESK] and [-ESK] contexts both included semantically specific (i.e. [+sem sp]) and non-specific (i.e. [-sem sp]) items, resulting in 8 items in each category. Examples of [+ESK] and [-ESK] items are given below to ease understanding.

[+sem sp, +ESK] context:

Item 8. Between friends
Tom: How was your trip to New York?
Susan: Great! I went to many museums and visited many friends. On the last day, I saw (a, the, --) play. It was very long, about three hours, but really exciting. The actors were wonderful and the lights on the stage were beautiful.
Tom: I wish I could have seen it.

[+sem sp, -ESK] context:

Item 2. Between friends
Gertrude: Guess what? My cousin Claudia is in Washington, D.C. this week.
Richard: What’s she doing there?
Gertrude: She is doing some interviews for her newspaper. She is interviewing (a, the, --) politician; I’m afraid I don’t know who, exactly. I’ll find out when I read her article!

[-sem sp, +ESK] context:

Item 17. In a gift shop
Clerk: What can I do for you?
Customer: I am looking for (a, the, --) doll. It can be blue or yellow, the color my daughter likes. Also, it should not be too large for a five-year old girl.

[-sem sp, -ESK] context:

Item 41. Between friends
Sue: Congratulations on winning the lottery! What are you going to do with the money?
Sandy: I want to buy (a, the, --) house. I don’t know what it will look like or how large it will be. I need to do some research on the housing market.

As we can see from the above examples, the notion of ESK is a discourse-level phenomenon. Both the expression of explicit knowledge of the referent and the denial of explicit knowledge of the referent are ways to continue the topic about the referent. Regardless of whether the speaker can construct a unique mental representation of the referent (i.e. whether the referent is semantically specific or not), the speaker can continue to indicate his or her knowledge or ignorance of the referent.
Learners’ accuracy in the [+ESK] context and [-ESK] context was computed and summarized in Table 71. The mean accuracy in the two contexts was similar and both were high.

**Table 71 Accuracy in contexts characterized by ESK**

<table>
<thead>
<tr>
<th>ESK</th>
<th>N</th>
<th>N of items</th>
<th>Mean</th>
<th>Mdn</th>
<th>SD</th>
<th>Min.</th>
<th>Max.</th>
<th>Skewness</th>
<th>SES</th>
</tr>
</thead>
<tbody>
<tr>
<td>[+ESK] context</td>
<td>110</td>
<td>8</td>
<td>.885</td>
<td>.938</td>
<td>.158</td>
<td>.250</td>
<td>1</td>
<td>-1.820</td>
<td>.230</td>
</tr>
<tr>
<td>[-ESK] context</td>
<td>110</td>
<td>8</td>
<td>.858</td>
<td>.875</td>
<td>.183</td>
<td>.125</td>
<td>1</td>
<td>-1.464</td>
<td>.230</td>
</tr>
</tbody>
</table>

The accuracy scores for each context were negatively skewed with a buildup of high scores, hence the violation of the normality assumption for *t*-tests. The non-parametric Wilcoxon signed-rank test was used to compare whether learners’ accuracy differed between the [+ESK] context and the [-ESK] context. The results of the Wilcoxon test showed that there was no significant difference in accuracy between the [+ESK] context (Mdn = .938) and the [-ESK] context (Mdn = .875), *T* = 764.000, *p* = .123, *r* = -.104 (i.e. a small effect size).

The above analysis combined semantically specific and non-specific items in each category and compared mean accuracy between the [+ESK] and [-ESK] contexts. The following analysis distinguished between the two values of semantic specificity to explore the potential interaction between the effect of semantic specificity and ESK. A two-way repeated measures ANOVA was used to serve this purpose. Table 72 shows that learners’ accuracy in the four semantic contexts was similarly high, the highest being .905 in the [+sem sp, +ESK] context and the lowest being .845 in the [+sem sp, -ESK] context.

**Table 72 Accuracy in contexts characterized by semantic specificity and ESK**

<table>
<thead>
<tr>
<th>Semantic contexts</th>
<th>N</th>
<th>N of items</th>
<th>Mean</th>
<th>Mdn</th>
<th>SD</th>
<th>Min.</th>
<th>Max.</th>
<th>Skewness</th>
<th>SES</th>
</tr>
</thead>
<tbody>
<tr>
<td>[+sem sp, +ESK]</td>
<td>110</td>
<td>4</td>
<td>.905</td>
<td>1</td>
<td>.159</td>
<td>.500</td>
<td>1</td>
<td>-1.442</td>
<td>.230</td>
</tr>
<tr>
<td>[+sem sp, -ESK]</td>
<td>110</td>
<td>4</td>
<td>.845</td>
<td>1</td>
<td>.230</td>
<td>0</td>
<td>1</td>
<td>-1.489</td>
<td>.230</td>
</tr>
<tr>
<td>[-sem sp, +ESK]</td>
<td>110</td>
<td>4</td>
<td>.866</td>
<td>1</td>
<td>.224</td>
<td>0</td>
<td>1</td>
<td>-1.999</td>
<td>.230</td>
</tr>
<tr>
<td>[-sem sp, -ESK]</td>
<td>110</td>
<td>4</td>
<td>.870</td>
<td>1</td>
<td>.194</td>
<td>.250</td>
<td>1</td>
<td>-1.565</td>
<td>.230</td>
</tr>
</tbody>
</table>

The accuracy scores for each context were negatively skewed, violating the normality assumption for ANOVA. As explained earlier, ANOVA is robust to departures from the normality assumption for a large sample. The results of the ANOVA are summarized in Table 73. The main effect of semantic specificity on the accurate use of the indefinite article was not significant, *F*(1, 109) = .226, *p* = .635, which is in line with the result of a previous
ANOVA analysis of the interaction between semantic specificity and pragmatic specificity. The main effect of ESK on the accuracy was also not significant, $F(1, 109) = 2.961, p = .088$, confirming the results of the earlier Wilcoxon signed-rank test. Although the two main effects of semantic specificity and ESK were not significant, there was a significant interaction effect of the two, $F(1, 109) = 4.248, p = .042$, partial eta-squared ($\eta^2_p$) = .038, indicating a small effect.

Table 73 Tests of within-subjects effects (semantic specificity and ESK)

<table>
<thead>
<tr>
<th>Source</th>
<th>$df$</th>
<th>Mean Square</th>
<th>$F$</th>
<th>Sig.</th>
<th>Partial Eta Squared</th>
</tr>
</thead>
<tbody>
<tr>
<td>Semantic specificity</td>
<td>1</td>
<td>.005</td>
<td>.226</td>
<td>.635</td>
<td>.002</td>
</tr>
<tr>
<td>ESK</td>
<td>1</td>
<td>.082</td>
<td>2.961</td>
<td>.088</td>
<td>.026</td>
</tr>
<tr>
<td>Semantic specificity*ESK</td>
<td>1</td>
<td>.445</td>
<td>4.248</td>
<td>.042</td>
<td>.038</td>
</tr>
</tbody>
</table>

The interaction between semantic specificity and ESK is illustrated in Figure 8. ESK had different effects on learners’ accuracy of the indefinite article, depending on the value of semantic specificity. In a semantically specific context, the accuracy in [+ESK] items was higher than that in [-ESK] items, while in a semantically non-specific context, the accuracy in [+ESK] items was lower than that in [-ESK] items. The difference between the first contrast was significant ($T = 441.000, p = .011$), while the difference between the second contrast was not significant ($T = 562.500, p = .798$). On the other hand, the effect of semantic specificity on the accuracy of the indefinite article also depended on the value of ESK. In a [+ESK] context, the accuracy in semantically specific items was higher than in semantically non-specific items, while in a [-ESK] context the relationship was reversed.
To summarize the main findings in this section,

1. The two-way repeated measures ANOVA revealed that there was a significant main effect of pragmatic specificity on the accuracy of the indefinite article. If we ignore the factor of semantic specificity, learners were slightly more accurate in a pragmatically specific context than in a pragmatically non-specific context, the mean difference being 2.2%.

2. The effect of semantic specificity on the accuracy of the indefinite article was not significant. If the value of pragmatic specificity was controlled, the accuracy in a semantically specific context was insignificantly higher than that in a semantically non-specific context.

3. Explicitly stated knowledge (i.e. ESK) had no significant effect on the accuracy of the indefinite article. The accuracy in a [+ESK] context was marginally higher than that in a [-ESK] context.

4. There was a significant interaction effect between semantic specificity and ESK. In a semantically specific context, the accuracy in [+ESK] items was significantly higher than that
in [-ESK] items, while in a semantically non-specific context, the accuracy in [+ESK] items was slightly lower than that in [-ESK] items. On the other hand, in a [+ESK] context, the accuracy in semantically specific items was higher than in semantically non-specific items, while in a [-ESK] context the relationship was reversed.

5.4.5 Generic context

The generic context in the GJT included items in the form of grammatical and ungrammatical items. The previous analyses have only looked at the grammatical items targeting the indefinite article in the generic context. As promised earlier, this section will continue to look at the grammatical items containing the definite article and the ungrammatical items containing the zero article, and will compare learners’ knowledge of the indefinite article, the definite article and the zero article in the same generic context.

In the same generic context where both the indefinite article and the definite article are possible, learners’ accuracy in judging the indefinite article to be correct was 22.4%, compared to an accuracy of 55.0% in judging the definite article to be correct (see Table 74). For example,

Item 6. A hammer is very useful in modern life.

Item 51. The hammer is very useful in modern life.

In items 6 and 51, a hammer and the hammer were equally correct in the generic context. Learners were more likely to accept the use of the definite article in the generic context than the use of the indefinite article, as reflected by the difference in accuracy. By contrast, English native speakers had roughly the same accuracy in judging a and the, that is, 85% and 88% respectively, demonstrating no particular tendency towards the use of the indefinite article or the definite article (refer to Table 75). Learners’ tendency towards using the in the generic context was also shown in the corrections they supplied for the zero article. Corrections into the amounted to 70.7% of all the corrections and corrections into a took up 17.7% of all the total corrections (see Table 76).
Table 74 University students’ judgement accuracy in the generic contexts

<table>
<thead>
<tr>
<th>Generic contexts</th>
<th>N</th>
<th>N of items</th>
<th>Mean</th>
<th>Mdn</th>
<th>SD</th>
<th>Min.</th>
<th>Max.</th>
<th>Skewness</th>
<th>SES</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>104</td>
<td>4</td>
<td>.224</td>
<td>0</td>
<td>.289</td>
<td>0</td>
<td>1</td>
<td>1.131</td>
<td>.237</td>
</tr>
<tr>
<td>the</td>
<td>104</td>
<td>4</td>
<td>.550</td>
<td>.500</td>
<td>.393</td>
<td>0</td>
<td>1</td>
<td>-.204</td>
<td>.237</td>
</tr>
<tr>
<td>zero</td>
<td>104</td>
<td>4</td>
<td>.349</td>
<td>.250</td>
<td>.377</td>
<td>0</td>
<td>1</td>
<td>.647</td>
<td>.237</td>
</tr>
</tbody>
</table>

Table 75 English native speakers’ judgment accuracy in the generic contexts

<table>
<thead>
<tr>
<th>Generic contexts</th>
<th>N</th>
<th>N of items</th>
<th>Mean</th>
<th>Mdn</th>
<th>SD</th>
<th>Min.</th>
<th>Max.</th>
<th>Skewness</th>
<th>SES</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>25</td>
<td>4</td>
<td>.850</td>
<td>1</td>
<td>.217</td>
<td>.250</td>
<td>1</td>
<td>-1.339</td>
<td>.464</td>
</tr>
<tr>
<td>the</td>
<td>25</td>
<td>4</td>
<td>.880</td>
<td>1</td>
<td>.281</td>
<td>0</td>
<td>1</td>
<td>-2.744</td>
<td>.464</td>
</tr>
<tr>
<td>zero</td>
<td>25</td>
<td>4</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>NA</td>
<td>NA</td>
</tr>
</tbody>
</table>

Apart from learners’ preference for the definite article over the indefinite article in the generic context, learners also exhibited an article omission error in the generic context. To give an example,

Item 29. **Hammer** is very useful in modern life.

In item 29, either the definite article or the indefinite article is missing before the noun *hammer*. Learners’ accuracy in judging items with zero article in front of a singular noun (i.e. an error of omission) was only 34.9% (as shown in Table 74), while all the native speaker participants correctly judged the omission of articles to be wrong. This omission error was more of a problem in the generic context than in the non-generic context. In the non-generic context the accuracy in items with omission of the indefinite article was 86.3%, much higher than the accuracy in judging omission errors in the generic context.

Learners’ overuse of the zero article with singular nouns in the generic context was not only reflected in their judgement of items containing the zero article, but was also reflected in the corrections they provided for items containing *a* or *the*. Table 76 lists the proportion of each type of correction provided by learners in the generic contexts. The corrections are classified into *a*, *the*, the zero article (e.g. *hammer*), bare plurals (e.g. *hammers*), and corrections not made upon articles and absence of any corrections. The last two types of corrections are combined under the category of ‘others’. The generic context allows both the indefinite article and the definite article, and in some cases also bare plurals if the verb agrees with a
plural subject. The focus here is not on these correct corrections, but on the wrong corrections, that is, corrections into the zero article. For grammatical items containing the indefinite article, the accuracy in judging the use of *a* in the generic context was 22.4%, as mentioned earlier. Among the 323 corrections learners supplied, correction of *a* into the zero article accounted for 55.1% of all the corrections. For grammatical items containing the definite article, the accuracy in judging the use of *the* in the generic context was 55%. The correction of *the* into the zero article took up 73.3% of all the corrections supplied. The large proportion of corrections into the zero article echoed the low accuracy in judging items containing the zero article, which further confirmed the prevalence of the omission errors.

**Table 76 Types of corrections provided in the generic contexts**

<table>
<thead>
<tr>
<th>Generic contexts</th>
<th>Corrections provided (100%)</th>
<th>Total number of corrections</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><em>a</em></td>
<td><em>the</em></td>
</tr>
<tr>
<td><em>a</em></td>
<td>--</td>
<td>.384</td>
</tr>
<tr>
<td><em>the</em></td>
<td>.176</td>
<td>--</td>
</tr>
<tr>
<td>zero</td>
<td>.177</td>
<td>.707</td>
</tr>
</tbody>
</table>

To recapitulate the findings in this section,

1. In a generic context where *a* and *the* are equally correct, learners’ acceptance of *a* was lower than their acceptance of *the*. The judgement accuracy of *a* and *the* were 22.4% and 55.0% respectively.

2. Learners tended to omit articles before singular nouns in the generic context, as reflected in the low accuracy in judging items with the zero article and the large proportion of corrections into the zero article.

**5.5 Summary**

The results presented earlier are summarized here.

1. The second-year undergraduates sampled in this study had a relatively high overall accuracy rate for both the GJT and the article choice test. The overall accuracy of GJT was 73.6%, lower than that of the article choice test, 86.0%.

2. In the GJT, the accuracy for grammatical items was 84.3%, while the accuracy for ungrammatical items was 73.2%. The difference in accuracy may be attributed to the scoring
method, as ungrammatical items were scored on the basis of correct correction in addition to
correct judgment.

3. Results of the GJT showed that noun phrases in different syntactic positions (i.e. subject,
object, and complement) of the sentence posed different levels of difficulty to EFL learners in
terms of the accuracy of the indefinite article. The accuracy score for the complement
position was much higher than for both the subject and the object positions. When the generic
context was included in the category of subject position, the accuracy in the subject position
was lower than that in the object position; when the generic context was factored out, the
accuracy in the subject position was slightly higher than that in the object position.

4. Results of the GJT showed that noun phrases in different semantic contexts (i.e. generic,
specific and non-specific contexts) also had varying levels of difficulty for EFL learners. The
accuracy in the generic context was significantly lower than that in the non-generic context.
Within the non-generic contexts, the accuracy in the semantically specific context was higher
than that in the semantically non-specific context, regardless of whether the noun phrase was
in the subject position or in the object position.

5. The two-way repeated measures ANOVA of the GJT data resulted in a significant
interaction effect between semantic specificity (i.e. semantically specific and semantically
non-specific contexts) and syntactic positions (i.e. subject and object). In a semantically
specific context, the accuracy in the object position was slightly higher than that in the
subject position; in a semantically non-specific context, the accuracy in the object position
was significantly lower than that in the object position.

6. Results of the article choice test revealed a significant main effect of pragmatic specificity
on the accuracy of the indefinite article. If we ignore the factor of semantic specificity,
learners were slightly more accurate in a pragmatically specific context than in a
pragmatically non-specific context.

7. The results of the article choice test showed that semantic specificity did not have a
significant effect on the accuracy of the indefinite article, different from the results of the
GJT that indicated a significant effect of semantic specificity on the accuracy rate.

8. Results of the article choice test showed that the semantic feature of ‘explicitly stated
knowledge of the referent’ (i.e. ESK) did not have a significant effect on the accuracy of the
indefinite article. However, there was a significant interaction effect between semantic
specificity and ESK. In a semantically specific context, the accuracy in [+ESK] items was significantly higher than that in [-ESK] items, while in a semantically non-specific context, the accuracy in [+ESK] items was slightly lower than that in [-ESK] items.

9. The judgment accuracy in the generic contexts was generally low. In a generic context where both the indefinite article and the definite article were correct, learners’ acceptance of the indefinite article was lower than their acceptance of the definite article. Also, learners omitted articles a lot in the generic context, but much less so in the non-generic context, as reflected in their judgment of omission errors and in their correction of ungrammatical sentences.
Notes

1 The choice of an 80% cut-off for good agreement in the GJT is somewhat arbitrary. Some linguists hold that grammaticality is not a dichotomous notion, but judgments of grammaticality come in degrees. Also, different people have different acceptability thresholds (Schütze, 2016, p. 63). Considering the fuzziness of article usage and the impoverished context provided by the GJT, 80% agreement or accuracy is adequate.

2 Note that the remaining ungrammatical item in the generic context, item 29 (also shaded in Table 44), did not have as low an accuracy rate as the other three ungrammatical items. It is possibly because the item tends to be interpreted as a colloquialism in daily conversations, thus more favourable to a correction using a, while the other two articles are also acceptable.

3 The NSs’ accuracy in the four items targeting the use of the definite article was 0.88.

4 Originally, 36 students sat the article choice test twice, but the binomial test (which is to be reported in the following external reliability section) revealed one outlier and thus this participant was removed from the other reliability analyses, resulting in a valid sample of 35 for the retest and 110 for the first test.

5 The number of items included in the reliability statistical analysis is not necessarily equal to the total number of items used in the tests. SPSS automatically removes from the scale items exhibiting zero variance (i.e. items which had 100% accuracy in this study) as they cannot be computed by the statistical procedures.

6 The overall accuracy of the GJT did not include the four items targeting the in the generic context and the four ungrammatical items with the zero article in the generic context. In other words, only the 44 main items were included in the analysis of the overall accuracy for the NNS group, similar to the analysis done for the NS group.

7 The table did not include the generic context, as there were only grammatical items in the generic context after the four ungrammatical items in the generic context had been removed because they elicited corrections other than the indefinite article, as mentioned earlier. The grammatical and ungrammatical items compared were equal in number in each non-generic context.

8 The interpretation of partial eta squared (\(\eta_p^2\)) follows the commonly used guidelines proposed by (J. Cohen, 1988, pp. 284-287): .01 = small effect, .06 = moderate effect, .14 = large effect, as cited in Pallant (2013).

9 The formula for the effect size \(r\) for calculating contrasts is suggested by Field (2013):
\[
r = \frac{F(1,dfR)}{\sqrt{F(1,dfR)+dfR}}
\]
\((dfR\) refers to the degrees of freedom for the residuals of the model)

10 Note that the English native speakers’ judgment accuracy in the items with zero article was 100% accurate. Since the accuracy was constant, the standard deviation was 0 and the concept of skewness did not apply.
Chapter 6 Results for the Middle School Students

6.1 Introduction

This chapter reports the results from analysing the data of Chinese middle school students in order to answer the same research questions listed in the previous chapter. Using data from two different age groups of EFL learners to address the same lot of research questions will not only inform us of how accurately learners of different proficiencies can use the indefinite article, but will also enable us to compare whether the syntactic, semantic and pragmatic contexts of noun phrases will exert different effects on learners of different proficiencies. To avoid redundancy, as the analysis methods used in this chapter are roughly the same as those used in the previous chapter, this chapter will not repeat the explanation of concepts or methods. Results will be presented more concisely and familiarity with the previous chapter will facilitate understanding of this chapter.

6.2 Reliability of the instruments

As in the previous chapter, this section will report two kinds of reliability: 1. internal reliability and 2. external (test-retest) reliability. The only slight difference between the middle school participants and the university participants lies in the fact that the middle schoolers made corrections not only in the first round of tests but also in the re-test, while in order to minimize the demand on their time before the exam week the university students were not asked to provide corrections in their retest. Therefore, in the case of the middle school students, the test-retest reliability analysis will be conducted on the basis of correction scores instead of the judgement scores, as the context analyses are mainly based on the correction scores.

6.2.1 Internal reliability

The internal reliability of the two test instruments is estimated by Cronbach’s alpha and Spearman-Brown coefficient. Table 77 displays the internal reliability estimates by these two methods for both the first round of tests and the second round of the same tests. For the first administration of the GJT, the Cronbach’s alpha and the Spearman-Brown coefficient were .826 and .847 respectively. In the second administration of the GJT, the two estimates were
.820 and .841 respectively, almost the same as in the first administration. For the article choice test, the Cronbach’s alpha and the Spearman-Brown coefficient were .825 and .771 respectively, and both values also increased in the second administration.

Table 77 Internal reliability of testing instruments

<table>
<thead>
<tr>
<th>Tests</th>
<th>Cronbach’s alpha</th>
<th>Spearman-Brown</th>
<th>N of participants</th>
<th>N of items included</th>
<th>Items in total</th>
</tr>
</thead>
<tbody>
<tr>
<td>GJT (1st)</td>
<td>.826</td>
<td>.847</td>
<td>109</td>
<td>48</td>
<td>48</td>
</tr>
<tr>
<td>Choice test (1st)</td>
<td>.825</td>
<td>.771</td>
<td>103</td>
<td>32</td>
<td>32</td>
</tr>
<tr>
<td>GJT (2nd)</td>
<td>.820</td>
<td>.841</td>
<td>34</td>
<td>46</td>
<td>48</td>
</tr>
<tr>
<td>Choice test (2nd)</td>
<td>.849</td>
<td>.855</td>
<td>30</td>
<td>32</td>
<td>32</td>
</tr>
</tbody>
</table>

The above reliability analysis of the GJT is conducted with all the items of the test, not discriminating between items measuring different articles. The GJT, with 48 valid items, is made up of 44 items targeting the use of the indefinite article and 4 items targeting the use of the definite article. The inclusion of the 4 items testing the definite article enables a comparison between the learners’ knowledge of the indefinite article and the definite article in the generic context, as mentioned in the methods chapter. Therefore, strictly speaking, the test consists of these two sub-scales. Analysing the sub-scales separately will reveal the reliability of the underlying structures of the test. Table 78 summarises the reliability statistics for the two-sub-scales (i.e. the indefinite items and the definite items) for the GJT test across times.

Table 78 Internal reliability of the sub-scales of the GJT test

<table>
<thead>
<tr>
<th>Sub-scales</th>
<th>Cronbach’s alpha</th>
<th>Spearman-Brown</th>
<th>N of participants</th>
<th>N of items included</th>
<th>Items in total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indefinite (1st)</td>
<td>.862</td>
<td>.837</td>
<td>110</td>
<td>44</td>
<td>44</td>
</tr>
<tr>
<td>Definite (1st)</td>
<td>.653</td>
<td>.711</td>
<td>115</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Indefinite (2nd)</td>
<td>.870</td>
<td>.829</td>
<td>34</td>
<td>42</td>
<td>44</td>
</tr>
<tr>
<td>Definite (2nd)</td>
<td>.908</td>
<td>.913</td>
<td>34</td>
<td>4</td>
<td>4</td>
</tr>
</tbody>
</table>

In both the first and the second tests of the GJT, the Cronbach’s alpha and the Spearman-Brown coefficient of the indefinite article sub-scale were both above .8, resembling the estimates of the whole scale. For the first test, the definite article sub-scale had a lower reliability of .653 for Cronbach’s alpha and .711 for Spearman-Brown coefficient. It is not surprising that the Cronbach’s alpha conducted on the four definite items was not high, as this
statistic is affected by the number of items included. However, the reliability values of the four definite articles were above .9 in the retest.

6.2.2 External reliability

The external reliability of the two instruments will be estimated from two perspectives: 1. a correlation analysis to assess the strength of correlation in accuracy scores between the two administrations of the same tests, and 2. a binomial test to estimate whether the students’ change of answers across time is significant.

6.2.2.1 Spearman’s correlation

Before correlation analyses were conducted, exploratory statistics were run to check whether the data met the assumptions for correlation analyses. A scatterplot of the accuracy scores of the GJT across time was generated, and there was no indication of a curvilinear relationship. Similarly, the scatterplot also shows that the accuracy scores of the article choice test across time were related in a linear fashion. Thus the linearity assumption for the correlation analysis was satisfied.

Descriptive statistics (see Table 79) showed that the retest group had similar scores in both the GJT and the article choice test across time. The accuracy of the retest group in the GJT for the first and second times was .710 and .724 respectively, and the accuracy of the article choice test was .864 and .854 across time. The distribution of the accuracy scores for the first GJT was slightly negatively skewed as indicated by the skewness statistics in Table 79 while the distribution of the accuracy scores for the second GJT was relatively normal. Also, the accuracy scores of the article choice test were negatively skewed with a clustering of scores at the high end. Tests of normality further showed that the accuracy scores of the first GJT and both the first and second article choice tests were not normally distributed, and therefore a nonparametric test should be used to calculate the correlation between the scores at different times.

<table>
<thead>
<tr>
<th>Tests</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>Min.</th>
<th>Max.</th>
<th>Skewness</th>
<th>SES</th>
</tr>
</thead>
<tbody>
<tr>
<td>GJT (1st)</td>
<td>34</td>
<td>.710</td>
<td>.116</td>
<td>.479</td>
<td>.896</td>
<td>-.610</td>
<td>.403</td>
</tr>
<tr>
<td>GJT (2nd)</td>
<td>34</td>
<td>.724</td>
<td>.130</td>
<td>.438</td>
<td>.917</td>
<td>-.346</td>
<td>.403</td>
</tr>
<tr>
<td>Choice (1st)</td>
<td>30</td>
<td>.864</td>
<td>.114</td>
<td>.531</td>
<td>1</td>
<td>-1.055</td>
<td>.427</td>
</tr>
<tr>
<td>Choice (2nd)</td>
<td>30</td>
<td>.854</td>
<td>.144</td>
<td>.469</td>
<td>1</td>
<td>-1.149</td>
<td>.427</td>
</tr>
</tbody>
</table>
The non-parametric Spearman’s correlation coefficient (or Spearman’s rho) was computed. This indicated that the accuracy scores of the first GJT were significantly positively correlated with the scores of the second GJT done a week later, \( r_s = .745 \), 95% BCa CI \([.560, .854]\), \( p = .000 \) (as shown in Table 80). There was also a significant positive correlation between the accuracy scores of the article choice test administrated twice, \( r_s = .543 \), 95% BCa CI \([.232, .775]\), \( p = .002 \). Both correlation coefficients were above .50, suggesting a strong relationship, following Cohen’s (1988) guidelines.\(^4\) The strong test-retest correlations pointed to good external reliability of the tests.

### Table 80 Test-retest correlations for the GJT and article choice test

<table>
<thead>
<tr>
<th>Test-retest Correlation</th>
<th>GJT</th>
<th>Choice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spearman’s rho</td>
<td>.745**</td>
<td>.543**</td>
</tr>
<tr>
<td>BCa 95% CI(^a)</td>
<td>[.560, .854]</td>
<td>[.232, .775]</td>
</tr>
<tr>
<td>Sig.</td>
<td>.000</td>
<td>.002</td>
</tr>
<tr>
<td>( N )</td>
<td>34</td>
<td>30</td>
</tr>
</tbody>
</table>

\(^{**}\). Correlation is significant at the 0.01 level (2-tailed).
\(^{a}\). Bias corrected and accelerated bootstrap 95% Confidence Interval (i.e. BCa 95% CI) was reported in brackets. Bootstrap results are based on 1000 bootstrap samples.

### 6.2.2.2 Binomial test

The binomial test was used to assess the extent to which the participants responded differently to the retest items over time. The null hypothesis for the binomial test is that the probability of the participants giving unchanged answers is 50%, and the alternative hypothesis is that the probability of the participants giving unchanged answers is above 50%.

The descriptive statistics of the number of changes (regardless of directions) are summarized in Table 81.\(^5\) As can be seen, no participant was 100% consistent in his or her answers across time. The smallest number of changes a participant made was 2, and the largest number of changes was 19. The average number of changes was 8.73, and the median number of changes was 8 (accounting for about 17% of a total of 48 items). The participant who made the largest number of changes, i.e. 19, was looked at first. The binomial test on this participant gave a significant \( p = .097 \), which means we have no evidence to reject the null hypothesis: the probability of this participant not changing his or her answers (i.e. choosing the same answer in the retest) is 0.5. In other words, this participant was choosing randomly and his answers were not reliable across time. Thus this participant was removed from the sample. Then the binomial test was used on the participant who had the second largest number of changes, that is, 18 items out of 48 items. The test generated \( p = .056 \), which gives
no evidence to reject the hypothesis, and this participant was again removed. The same test was repeated on the participant who had the third largest number of changes, that is, 17 items, resulting in a significant $p = .0297$. It means that we have evidence to reject the null hypothesis and accept the alternative hypothesis: the participant has a higher than 0.5 probability of giving the same answer in the retest. It indicates that this participant was consistent and reliable. The rest of the participants who produced a smaller number of changes than this one can also be regarded as responding reliably. In sum, only the first two participants were removed from subsequent analyses.

Table 81 Descriptive statistics of the number of changes in the retest

<table>
<thead>
<tr>
<th>Tests</th>
<th>$N$</th>
<th>Mean</th>
<th>Median</th>
<th>$SD$</th>
<th>Min.</th>
<th>Max.</th>
<th>Skewness</th>
<th>SES</th>
</tr>
</thead>
<tbody>
<tr>
<td>GJT</td>
<td>37</td>
<td>8.730</td>
<td>8</td>
<td>4.897</td>
<td>2</td>
<td>19</td>
<td>.552</td>
<td>.388</td>
</tr>
<tr>
<td>Choice</td>
<td>31</td>
<td>5.871</td>
<td>5</td>
<td>4.145</td>
<td>0</td>
<td>17</td>
<td>1.100</td>
<td>.421</td>
</tr>
</tbody>
</table>

For the article choice test, the same procedures apply. In the repeated article choice test, the average number of changes the participants made was 5.87, and the median was 5 (i.e. about 16% of a total of 32 items). There was one participant who made no changes of answers in the retest, and there was also a participant who made as many as 17 changes in the retest. The binomial test was first run on the participant who made the largest number of changes, i.e. 17, a non-significant $p = .078$ indicates that this participant did not respond reliably. In turn, the participant who made the second largest number of changes, i.e. 15, was tested. A significant $p = .016$ suggests that this participant responded reliably. Therefore, only one participant was removed from the sample for the article choice test.

By using the above binomial test, we can assess whether the probability of a certain participant giving the same answer in the retest is above expectation (i.e. 0.5 for GJT and 0.33 for the article choice test). The results reflect the participants’ test-retest reliability. The binomial test, however, tells us nothing about the change of direction in the participants’ answers. The following Table 82 classifies the number of changes the participants made from test 1 to test 2 for the GJT. After removing the unreliable participants as suggested by the above binomial test, there were 35 participants in the retest for the GJT, and each of them answered the same 48-item GJT, resulting in a total of 1680 items. After missing values were excluded, there were 1676 valid items. The number of items which the students answered differently is shaded in Table 82. There were 135 items which students first judged correctly but later judged incorrectly, and there were 151 items where students shifted from a wrong
judgement to a correct judgment. The total number of items that were judged differently accounted for 17.1% of all the items. The percentages of changes in the two directions are close.

Table 82 Changes in judgment for the GJT (2 outliers removed)

<table>
<thead>
<tr>
<th></th>
<th>GJT (test 2)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>wrong</td>
<td>correct</td>
</tr>
<tr>
<td>GJT (test 1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>wrong</td>
<td>219 (13.1%)</td>
<td>151 (9.0%)</td>
</tr>
<tr>
<td>correct</td>
<td>135 (8.1%)</td>
<td>1171 (69.9%)</td>
</tr>
<tr>
<td>Total</td>
<td>354 (21.1%)</td>
<td>1322 (78.9%)</td>
</tr>
</tbody>
</table>

Similarly, Table 83 cross-tabulated the participants’ choice of articles in the two administrations of the choice test after an unreliable case has been removed as indicated by the binomial test above. There were 30 participants, each doing the 32-item article choice test, resulting in a total of 956 valid items (excluding 4 missing values). Adding up the shaded cells in Table 83, the total number of changes amount to 17.2% of all the items. The changes from *a* to *the* and from *the* to *a* are far more than shifts involving zero article.

Table 83 Changes in choice of articles (1 outlier removed)

<table>
<thead>
<tr>
<th></th>
<th>choice (test 2)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><em>a</em></td>
<td><em>the</em></td>
</tr>
<tr>
<td>choice (test 1)</td>
<td>741 (77.5%)</td>
<td>80 (8.4%)</td>
</tr>
<tr>
<td><em>the</em></td>
<td>53 (5.5%)</td>
<td>46 (4.8%)</td>
</tr>
<tr>
<td><em>zero</em></td>
<td>22 (2.3%)</td>
<td>3 (0.3%)</td>
</tr>
<tr>
<td>Total</td>
<td>816 (85.4%)</td>
<td>129 (13.5%)</td>
</tr>
</tbody>
</table>

6.3 Test results

6.3.1 Accuracy of the indefinite article

This section addressed research question 1: How accurate is Chinese L2 learners’ knowledge of the indefinite article?

To answer this question, the students’ overall accuracy in the GJT and the article choice test was computed, along with the accuracy for each item.
6.3.1.1 Overall accuracy

The mean accuracy in the GJT was 68.2%, with a range from 27.3% to 100% (as displayed in Table 84). 6 The skewness value, histogram, normal Q-Q plot, and the test of normality (i.e. the Shapiro-Wilk test, \( p = .091 \)) all indicated that the GJT accuracy scores had a normal distribution. Also, the histogram and the boxplot showed no extreme values or outliers.

The accuracy scores for the grammatical items and the ungrammatical items in the GJT are listed separately in Table 85.7 The students’ accuracy in judging grammatical items was .802, much higher than their accuracy in judging ungrammatical items, that is, .583. The lowest score in the ungrammatical items was 0, and in the grammatical items .35. As mentioned in the previous chapter, the discrepancy is not really surprising given the different scoring methods for grammatical items and ungrammatical items. The accuracy scores for the grammatical items were a bit negatively skewed due to a clustering of relatively high scores, and the accuracy scores for the ungrammatical items were normally distributed as shown by the skewness value, the plots and the tests of normality.

| Table 84 Descriptive statistics for accuracy of GJT and article choice test |
|-----------------|---|---|---|---|---|---|---|---|
| Test            | N  | Mean | Mdn | SD  | 95% CI     | Min. | Max. | Skewness | SES |
| GJT             | 116| .682 | .682| .162| [.652, .712] | .273 | 1    | -.240    | .225 |
| Choice          | 110| .815 | .844| .143| [.789, .842] | .438 | 1    | -.772    | .230 |

| Table 85 Breakdown of GJT scores in non-generic contexts |
|-----------------|---|---|---|---|---|---|---|---|
| Test        | N  | Mean | Mdn | SD  | 95% CI     | Min. | Max. | Skewness | SES |
| G (20 items) | 116| .802 | .800| .135| [.777, .827] | .350 | 1    | -.832    | .225 |
| UG (20 items)| 116| .583 | .600| .243| [.538, .627] | 0    | 1    | -.343    | .225 |

The mean score for the article choice test was 81.5% (see Table 84). Individual scores ranged from 43.8% to 100%. The skewness value, histogram, normal Q-Q plot, and the Shapiro-Wilk test (\( p = .000 \)) all pointed to the fact that the accuracy scores of the article choice test were not normally distributed, as there was a build-up of high scores. The histogram and the boxplot showed no outliers.

To display the distribution of the accuracy scores, the number of students falling into each accuracy band is shown in Table 86. For the GJT, 9.48% of the students achieved 90% or above accuracy. By contrast, 39.09% of the students were in the same accuracy band for the
article choice test. Of those students who achieved above 80%, there were 29 students (i.e. 25% of the entire group) for the GJT and there were 70 students (i.e. 63.64% of the entire group) for the article choice test. There were not only fewer students with high scores in the GJT, but also more students with low scores (i.e. below 50%) for the GJT than for the article choice test.

For the GJT, the band with the largest number of students (i.e. 23.28%) was 60-69.9%, and the number in each 10% band below 60% or above 70% decreased, resulting in a relatively symmetric distribution. For the article choice test, the accuracy band with the largest number of students was 90-100%, and the number of students in each 10% band below 90% decreased gradually, contributing to a negatively skewed distribution shape.

### Table 86 Learners categorized by accuracy range

<table>
<thead>
<tr>
<th>Accuracy</th>
<th>GJT</th>
<th>Article Choice</th>
</tr>
</thead>
<tbody>
<tr>
<td>90-100%</td>
<td>11</td>
<td>43</td>
</tr>
<tr>
<td>80-89.9%</td>
<td>18</td>
<td>27</td>
</tr>
<tr>
<td>70-79.9%</td>
<td>25</td>
<td>15</td>
</tr>
<tr>
<td>60-69.9%</td>
<td>27</td>
<td>13</td>
</tr>
<tr>
<td>50-59.9%</td>
<td>20</td>
<td>10</td>
</tr>
<tr>
<td>0-49.9%</td>
<td>15</td>
<td>2</td>
</tr>
<tr>
<td>Total</td>
<td>116</td>
<td>110</td>
</tr>
</tbody>
</table>

#### 6.3.1.2 Item-wise accuracy

The accuracy rate of each item in the GJT and the article choice test is provided in Appendix J. The facility value (FV), or the accuracy rate of each item in the GJT (consisting of 44 main items) ranged from .22 to .99. There were 4 items with a facility value of less than .33, which means they were very difficult for the middle school students. There were 16 items that had a facility value in the .33-.66 range (i.e. moderately difficult). The remaining 24 items with a facility value of above .66 were relatively easy items for the students.

The FV in the article choice test ranged from .53 to .96. There were no items that had a FV of below .33, and there were 6 items with a FV in the .33-.66 range. All the other 26 items had a FV of above .66, which means that the majority of the items in the article choice test could be regarded as easy items for the students.

To summarize the main findings for research question 1:
1. The middle school students had an overall accuracy of 68.2% in the GJT and 81.5% in the article choice test. The range of individual scores for the GJT and the article choice test was 27.3%-100%, and 43.8%-100%, respectively. Overall, the students were more accurate in the article choice test than in the GJT.

2. There was a large difference in the scores for the grammatical items and ungrammatical items in the GJT. The accuracy for grammatical items was 80.2%, while the accuracy for ungrammatical items was 58.3%.

3. The distribution of students in each accuracy band for the GJT and the article choice test was different. The students who had an accuracy of above 90% in the GJT accounted for 9.48% of the sample, while the students who had an accuracy of above 90% in the article choice test amounted to 39.09% of the sample.

4. The facility values of the test items indicated that there were more difficult items in the GJT than in the article choice test. There were 4 difficult items (i.e. FV below .33) and 16 moderately difficult items (i.e. FV between .33 and .66) in the GJT. By contrast, there were no difficult items and only 6 moderately difficult items in the article choice test.

6.3.2 The effect of syntactic positions

This section will answer research question 3.1: How are the grammatical functions of NPs in a sentence (i.e. subject, object and complement) related to learners’ (mis)use of the indefinite article?

6.3.2.1 First analysis: ungrammatical items

The accuracy scores for ungrammatical items with noun phrases in three different syntactic positions were calculated. The accuracy in the complement position was much higher than in both the subject and the object positions, and the accuracy in the object position was the lowest of the three (see Table 87). The accuracy scores for the object position were roughly normally distributed, as can be observed from the skewness value. The accuracy scores for the subject position and the complement position were negatively skewed.
Table 87 Descriptive statistics for accuracy across syntactic positions (non-generic)

<table>
<thead>
<tr>
<th>Syntactic positions</th>
<th>N</th>
<th>N of items</th>
<th>Mean</th>
<th>Mdn</th>
<th>SD</th>
<th>Min.</th>
<th>Max.</th>
<th>Skewness</th>
<th>SES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subject</td>
<td>116</td>
<td>8</td>
<td>.524</td>
<td>.625</td>
<td>.323</td>
<td>0</td>
<td>1</td>
<td>-.249</td>
<td>.225</td>
</tr>
<tr>
<td>Object</td>
<td>116</td>
<td>8</td>
<td>.494</td>
<td>.500</td>
<td>.262</td>
<td>0</td>
<td>1</td>
<td>-.040</td>
<td>.225</td>
</tr>
<tr>
<td>Complement</td>
<td>116</td>
<td>4</td>
<td>.877</td>
<td>1</td>
<td>.217</td>
<td>0</td>
<td>1</td>
<td>-1.843</td>
<td>.225</td>
</tr>
</tbody>
</table>

Given the violation of the normality assumption, the non-parametric Friedman’s ANOVA was used to test whether there was a difference among the three syntactic contexts. The Friedman’s test revealed that there was a significant difference among the three contexts, $\chi^2 (2, N = 116) = 149.484, p = .000$. Pairwise comparisons (Table 88) further showed that the accuracy in the object position was significantly lower than in the complement position, $T = -1.341, p = .000, r = -.670$ (i.e. a large effect size). The accuracy in the subject position was also significantly lower than in the complement position, $T = -1.246, p = .000, r = -.623$ (i.e. a large effect size). The accuracy in the object position was not significantly lower than in the subject position, $T = -.095, p = 1, r = -.047$ (i.e. a tiny effect size).

Table 88 Pairwise comparisons of accuracy across syntactic positions (non-generic)

<table>
<thead>
<tr>
<th>Syntactic contexts</th>
<th>Test Statistic</th>
<th>Std. Error</th>
<th>Std. Test Statistic</th>
<th>Sig.</th>
<th>Adj. Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Object-Complement</td>
<td>-1.341</td>
<td>.131</td>
<td>-10.209</td>
<td>.000</td>
<td>.000</td>
</tr>
<tr>
<td>Subject-Complement</td>
<td>-1.246</td>
<td>.131</td>
<td>-9.487</td>
<td>.000</td>
<td>.000</td>
</tr>
<tr>
<td>Object-Subject</td>
<td>-.095</td>
<td>.131</td>
<td>-.722</td>
<td>.470</td>
<td>1.000</td>
</tr>
</tbody>
</table>

In order to eliminate the potential confounding factor of specificity, the same analysis was repeated on non-specific items only, as the complement position, unlike the subject and the object positions, only has non-specific items. Table 89 presents the descriptive statistics for accuracy in the three syntactic positions for items in the non-specific context.

Table 89 Accuracy across syntactic positions (non-specific)

<table>
<thead>
<tr>
<th>Syntactic positions</th>
<th>N</th>
<th>N of items</th>
<th>Mean</th>
<th>Mdn</th>
<th>SD</th>
<th>Min.</th>
<th>Max.</th>
<th>Skewness</th>
<th>SES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subject</td>
<td>116</td>
<td>4</td>
<td>.432</td>
<td>.500</td>
<td>.313</td>
<td>0</td>
<td>1</td>
<td>.104</td>
<td>.225</td>
</tr>
<tr>
<td>Object</td>
<td>116</td>
<td>4</td>
<td>.381</td>
<td>.250</td>
<td>.290</td>
<td>0</td>
<td>1</td>
<td>.361</td>
<td>.225</td>
</tr>
<tr>
<td>Complement</td>
<td>116</td>
<td>4</td>
<td>.877</td>
<td>1</td>
<td>.217</td>
<td>0</td>
<td>1</td>
<td>-1.843</td>
<td>.225</td>
</tr>
</tbody>
</table>
After having removed the specific items, the accuracy in the subject position and the object position is even lower than the accuracy in the complement position. Friedman’s ANOVA indicated that there was a significant difference among the three syntactic positions, $\chi^2 (2, N = 116) = 150.307, p = .000$. In Table 90, pairwise comparisons further showed that the accuracy in the complement position was significantly higher than that in the object position, $T = -1.349, p = .000, r = -.675$ (i.e. a large effect size), and also significantly higher than that in the subject position, $T = -1.224, p = .000, r = -.612$ (i.e. a large effect size).

<table>
<thead>
<tr>
<th>Syntactic contexts</th>
<th>Test Statistic</th>
<th>Std. Error</th>
<th>Std. Test Statistic</th>
<th>Sig.</th>
<th>Adj. Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Object-Complement</td>
<td>-1.349</td>
<td>.131</td>
<td>-10.275</td>
<td>.000</td>
<td>.000</td>
</tr>
<tr>
<td>Subject-Complement</td>
<td>-1.224</td>
<td>.131</td>
<td>-9.323</td>
<td>.000</td>
<td>.000</td>
</tr>
<tr>
<td>Object-Subject</td>
<td>-.125</td>
<td>.131</td>
<td>-.952</td>
<td>.341</td>
<td>1.000</td>
</tr>
</tbody>
</table>

### 6.3.2.2 Second analysis: grammatical items

As the generic context only has valid items for grammatical sentences, comparisons involving the generic context will have to use the accuracy scores for the grammatical items. The inclusion of the generic context at the same time introduces a confounding factor of genericity, which may veil the difference in accuracy associated with syntactic positions. Therefore, the accuracy scores for the subject position including the generic context (i.e. resulting in 12 items altogether) and the accuracy scores for the subject position excluding the generic context (i.e. resulting in 8 items altogether) are listed separately.

<table>
<thead>
<tr>
<th>Syntactic positions</th>
<th>N</th>
<th>N of items</th>
<th>Mean</th>
<th>Mdn</th>
<th>SD</th>
<th>Min.</th>
<th>Max.</th>
<th>Skewness</th>
<th>SES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subject a</td>
<td>116</td>
<td>12</td>
<td>.699</td>
<td>.750</td>
<td>.185</td>
<td>.167</td>
<td>1</td>
<td>-.331</td>
<td>.225</td>
</tr>
<tr>
<td>Subject b</td>
<td>116</td>
<td>8</td>
<td>.758</td>
<td>.804</td>
<td>.191</td>
<td>.125</td>
<td>1</td>
<td>-.852</td>
<td>.225</td>
</tr>
<tr>
<td>Object</td>
<td>116</td>
<td>8</td>
<td>.758</td>
<td>.750</td>
<td>.210</td>
<td>0</td>
<td>1</td>
<td>-.825</td>
<td>.225</td>
</tr>
<tr>
<td>Complement</td>
<td>116</td>
<td>4</td>
<td>.976</td>
<td>1</td>
<td>.074</td>
<td>.750</td>
<td>1</td>
<td>-2.802</td>
<td>.225</td>
</tr>
</tbody>
</table>

Subject a: items in the subject position including the generic context
Subject b: items in the subject position excluding the generic context

As shown in Table 91, the accuracy scores for grammatical items in all the three syntactic positions are higher than those of ungrammatical items, mainly due to the scoring method as mentioned previously. The complement position still had the highest accuracy. When the
generic context was excluded from the items in the subject position, the subject position had the same accuracy as the object position. When the generic items were included in the subject position, the subject position had the lowest accuracy, which indicates that what brings down the accuracy is the semantic factor of genericity rather than the subject position itself.

The results of Friedman’s ANOVA on the accuracy scores of the grammatical items (excluding the generic context) were the same as those for the ungrammatical items. There was a significant difference among the three contexts, $\chi^2 (2, N = 116) = 111.278, p = .000$. Further pairwise comparisons (see Table 92) showed that the accuracy in the complement position was significantly higher than both the object position, $T = -1.091, p = .000, r = -.545$ (a large effect size), and the subject position, $T = 1.095, p = .000, r = .547$ (a large effect size). The accuracy in the object position was not significantly different from that in the subject position, $p = 1$.

Table 92 Pairwise comparisons of accuracy across syntactic positions (non-generic)

<table>
<thead>
<tr>
<th>Syntactic contexts</th>
<th>Test Statistic</th>
<th>Std. Error</th>
<th>Std. Test Statistic</th>
<th>Sig.</th>
<th>Adj. Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Object-Complement</td>
<td>-1.091</td>
<td>.131</td>
<td>-8.305</td>
<td>.000</td>
<td>.000</td>
</tr>
<tr>
<td>Subject-Complement</td>
<td>1.095</td>
<td>.131</td>
<td>8.338</td>
<td>.000</td>
<td>.000</td>
</tr>
<tr>
<td>Object-Subject</td>
<td>.004</td>
<td>.131</td>
<td>.033</td>
<td>.974</td>
<td>1</td>
</tr>
</tbody>
</table>

To summarize the main findings for research question 3.1:

1. Among the three syntactic positions, the complement position had by far the highest accuracy score, i.e. 87.7% in the case of ungrammatical items and 97.6% in the case of grammatical items. The accuracy in the complement position was significantly higher than that in the subject position and than in the object position, regardless of whether the scores were based on grammatical items or ungrammatical items.

2. The generic context aside, the accuracy in the object position was .494, lower than in the subject position (.524) for the ungrammatical items. The object position had the same accuracy as the subject position, that is, .758 for the grammatical items. The accuracy in the subject position was not significantly higher than that in the object position, either in the grammatical items or in the ungrammatical items.

3. When the generic items were included in the scores for the subject position, the accuracy in the subject position decreased from .758 to .699 in the grammatical items, which indicates
that what really affected learners’ accuracy in the subject position is the semantic factor of
genericity rather than the subject position itself.

6.3.3 The effect of article semantics

This section will analyse data from the GJT to answer research question 4: How are the
semantic contexts of NPs (i.e. specific, non-specific, and generic contexts) related to learners’
(mis)use of the indefinite article?

6.3.3.1 First analysis: ungrammatical items

The first analysis will calculate the mean accuracy scores of ungrammatical items in the non-
generic contexts and compare the accuracy in specific and non-specific contexts. Table 93
shows the descriptive statistics for the accuracy scores in specific and non-specific contexts
according to syntactic position.

<table>
<thead>
<tr>
<th>Semantic/syntactic contexts</th>
<th>N</th>
<th>N of items</th>
<th>Mean</th>
<th>Mdn</th>
<th>SD</th>
<th>Min.</th>
<th>Max.</th>
<th>Skewness</th>
<th>SES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specific subject</td>
<td>116</td>
<td>4</td>
<td>.616</td>
<td>.750</td>
<td>.379</td>
<td>0</td>
<td>1</td>
<td>-.450</td>
<td>.225</td>
</tr>
<tr>
<td>Specific object</td>
<td>116</td>
<td>4</td>
<td>.606</td>
<td>.750</td>
<td>.340</td>
<td>0</td>
<td>1</td>
<td>-.384</td>
<td>.225</td>
</tr>
<tr>
<td>Non-specific subject</td>
<td>116</td>
<td>4</td>
<td>.432</td>
<td>.500</td>
<td>.313</td>
<td>0</td>
<td>1</td>
<td>.104</td>
<td>.225</td>
</tr>
<tr>
<td>Non-specific object</td>
<td>116</td>
<td>4</td>
<td>.381</td>
<td>.250</td>
<td>.290</td>
<td>0</td>
<td>1</td>
<td>.361</td>
<td>.225</td>
</tr>
</tbody>
</table>

Among the four contexts shown in Table 93, the non-specific object context had the lowest
accuracy, i.e. 38.1%, and the specific subject context had the highest accuracy, i.e. 61.6%.
The two non-specific contexts had a lower accuracy than the two specific contexts, while the
accuracy for the object position was not always lower than that for the subject position,
depending on the semantic context.

A factorial repeated measures ANOVA was used to explore the effects of specificity and
syntactic positions, as well as their potential interaction. The ANOVA resulted in a
significant main effect of semantic specificity on the accuracy of the indefinite article, $F(1, 115) = 101.318, p = .000$, partial eta squared = .468 (i.e. a very large effect) (as shown in
Table 94). The main effect of syntactic position (i.e. subject and object) on the accuracy of
the indefinite article was not significant, $F(1, 115) = 2.160, p = .144$. Also, there was no
significant interaction effect between semantic specificity and syntactic positions, $F(1, 115)$
= .938, \( p = .335 \). The absence of interaction between the two factors is demonstrated by two parallel lines in the profile plot (Figure 9).

Table 94 Tests of within-subjects effects (semantic specificity and syntactic positions)

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>Mean Square</th>
<th>( F )</th>
<th>Sig.</th>
<th>Partial Eta Squared</th>
</tr>
</thead>
<tbody>
<tr>
<td>Semantic specificity</td>
<td>1</td>
<td>4.846</td>
<td>101.318</td>
<td>.000</td>
<td>.468</td>
</tr>
<tr>
<td>Syntactic positions</td>
<td>1</td>
<td>.108</td>
<td>2.160</td>
<td>.144</td>
<td>.018</td>
</tr>
<tr>
<td>Specificity*Position</td>
<td>1</td>
<td>.045</td>
<td>.938</td>
<td>.335</td>
<td>.008</td>
</tr>
</tbody>
</table>

Table 95 shows the pairwise comparisons for the main effect of semantic specificity corrected using a Bonferroni adjustment. Contrasts revealed that if we ignore the factor of syntactic positions, there was a significant difference in accuracy between the semantically specific and semantically non-specific contexts, \( p = .000 \), \( r = .684 \) (a large effect size). Learners were more accurate in a semantically specific context than in a semantically non-specific context. With 95% confidence, it is estimated that learners’ accuracy in the specific context, on average, is somewhere between 16.4% and 24.5% higher than the accuracy in the non-specific context, the mean difference being 20.4%.

![Interaction Effect](image)

Figure 9 Interaction between (non-)specificity and syntactic position
Table 95 Pairwise comparisons for the main effect of semantic specificity

<table>
<thead>
<tr>
<th>(I) specificity</th>
<th>(J) specificity</th>
<th>Mean Difference (I-J)</th>
<th>SE</th>
<th>Sig.</th>
<th>95% CI for Difference</th>
<th>LB</th>
<th>UB</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. specific</td>
<td>2. non-specific</td>
<td>.204*</td>
<td>.020</td>
<td>.000</td>
<td>.164</td>
<td>.245</td>
<td></td>
</tr>
<tr>
<td>2. non-specific</td>
<td>1. specific</td>
<td>-.204*</td>
<td>.020</td>
<td>.000</td>
<td>-.245</td>
<td>.164</td>
<td></td>
</tr>
</tbody>
</table>

Note. Based on estimated marginal means
* The mean difference is significant at the .05 level.
b. Adjustment for multiple comparisons: Bonferroni.

Table 96 displays the pairwise comparisons for the main effect of syntactic position. The results showed that if we ignore the factor of semantic specificity, there was no significant difference in accuracy between the subject position and the object position, \( p = .144, r = .136 \) (i.e. a small effect size). With 95% confidence, it is estimated that learners’ accuracy in the subject position, on average, is somewhere between 1.1% lower and 7.2% higher than the accuracy in the object position, the mean difference being 3.1%.

Table 96 Pairwise comparisons for the main effect of syntactic position

<table>
<thead>
<tr>
<th>(I) position</th>
<th>(J) position</th>
<th>Mean Difference (I-J)</th>
<th>SE</th>
<th>Sig.</th>
<th>95% CI for Difference</th>
<th>LB</th>
<th>UB</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. subject</td>
<td>2. object</td>
<td>.031</td>
<td>.021</td>
<td>.144</td>
<td>-.011</td>
<td>.072</td>
<td></td>
</tr>
<tr>
<td>2. object</td>
<td>1. subject</td>
<td>-.031</td>
<td>.021</td>
<td>.144</td>
<td>-.072</td>
<td>.011</td>
<td></td>
</tr>
</tbody>
</table>

Note. Based on estimated marginal means
a. Adjustment for multiple comparisons: Bonferroni.

6.3.3.2 Second analysis: grammatical items

The second analysis will calculate and compare the accuracy scores of grammatical items in the generic and the non-generic contexts (including both specific and non-specific contexts).

The accuracy score for the generic context was 58.2%, lower than the accuracy score for the non-generic context 80.2% (see Table 97 for descriptive statistics). The accuracy scores in both contexts were negatively skewed and therefore the non-parametric Wilcoxon signed-rank test was used to compare the accuracy in the generic context and the non-generic context.

The accuracy in the generic context (Mdn = .500) was significantly lower than that in the non-generic context (Mdn = .800), \( T = 4858.500, z = 6.383, p = .000, r = .419 \) (i.e. a medium effect size).
Table 97 Descriptive statistics for accuracy in generic and non-generic contexts

<table>
<thead>
<tr>
<th>Semantic contexts</th>
<th>N</th>
<th>N of items</th>
<th>Mean</th>
<th>Mdn</th>
<th>SD</th>
<th>Min.</th>
<th>Max.</th>
<th>Skewness</th>
<th>SES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Generic</td>
<td>116</td>
<td>4</td>
<td>.582</td>
<td>.500</td>
<td>.326</td>
<td>0</td>
<td>1</td>
<td>-.296</td>
<td>.225</td>
</tr>
<tr>
<td>Non-generic</td>
<td>116</td>
<td>20</td>
<td>.802</td>
<td>.800</td>
<td>.135</td>
<td>.350</td>
<td>1</td>
<td>-.832</td>
<td>.225</td>
</tr>
</tbody>
</table>

In the above comparison, the non-generic context included items in different syntactic positions, while the generic context only had items in the subject position. To control for syntactic position, the same analysis was carried out on subject items only. Students’ accuracy in the subject non-generic context was slightly lower than that in the non-generic context with mixed syntactic positions, but still much higher than that in the generic context (see Table 98). The Wilcoxon signed-rank test showed that the accuracy in the generic context (Mdn = .500) was significantly lower than that in the non-generic context (Mdn = .758), $T = 3691.000$, $z = 4.758$, $p = .000$, $r = .312$ (i.e. a medium effect size). This analysis backs up the previous finding that it is the semantic meaning of genericity, rather than the subject position where both generic and non-generic items can occur, that proves difficult for learners.

Table 98 Accuracy in generic and non-generic contexts (subject)

<table>
<thead>
<tr>
<th>Semantic contexts</th>
<th>N</th>
<th>N of items</th>
<th>Mean</th>
<th>Mdn</th>
<th>SD</th>
<th>Min.</th>
<th>Max.</th>
<th>Skewness</th>
<th>SES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Generic (subject)</td>
<td>116</td>
<td>4</td>
<td>.582</td>
<td>.500</td>
<td>.326</td>
<td>0</td>
<td>1</td>
<td>-.296</td>
<td>.225</td>
</tr>
<tr>
<td>Non-generic (subject)</td>
<td>116</td>
<td>8</td>
<td>.758</td>
<td>.804</td>
<td>.191</td>
<td>.125</td>
<td>1</td>
<td>-.852</td>
<td>.225</td>
</tr>
</tbody>
</table>

To summarize the main findings for research question 4,

1. If we ignore the factor of syntactic position, there was a significant difference in accuracy between semantically specific and semantically non-specific contexts. It is estimated that on average learners’ accuracy in the specific context is 20.4% higher than in the non-specific context.

2. There was no significant interaction effect between semantic specificity (i.e. semantically specific and semantically non-specific) and syntactic positions (i.e. subject and object). The accuracy in the specific context was always higher than that in the nonspecific context, regardless of the syntactic position where the NP occurs.
3. The accuracy in the generic context was significantly lower than that in the non-generic context. The accuracy for the generic context was 58.2% and the accuracy for the non-generic context was 80.2%. This significant difference persisted when the comparison only involved items in the subject position, which confirmed that it was the semantics of genericity rather than the subject position that made this context most difficult.

6.3.4 The effect of specificity

This section will analyze data from the article choice test to address research question 5: How are the semantics of ‘specificity’ related to learners’ (mis)use of the indefinite article?

6.3.4.1 Semantic and pragmatic specificity

A two-way repeated measures ANOVA was computed to explore whether learners’ use of the indefinite article is related to the contexts featuring two kinds of specificity (i.e. semantic specificity and pragmatic specificity). Table 99 shows that the accuracy scores in the four semantic contexts were not very different from each other, roughly around 80%. The [-sem sp, +prag sp] context had the highest accuracy 83.1% and the [+sem sp, +prag sp] had the lowest accuracy 79.9%. Results of the two-way repeated measures ANOVA indicated that the effect of semantic specificity on the accuracy of the indefinite article was not significant, $F(1, 109) = 1.039, p = .310$ (Table 100). The effect of pragmatic specificity on the accuracy of the indefinite article was also not significant, $F(1, 109) = .014, p = .907$. There was no significant interaction effect between semantic specificity and pragmatic specificity, $F(1, 109) = 1.701, p = .195$.

Table 99 Accuracy in contexts characterized by semantic and pragmatic specificity

<table>
<thead>
<tr>
<th>Semantic contexts</th>
<th>N</th>
<th>N of items</th>
<th>Mean</th>
<th>Mdn</th>
<th>SD</th>
<th>Min.</th>
<th>Max.</th>
<th>Skewness</th>
<th>SES</th>
</tr>
</thead>
<tbody>
<tr>
<td>[+sem sp, +prag sp]</td>
<td>110</td>
<td>8</td>
<td>.799</td>
<td>.875</td>
<td>.173</td>
<td>.375</td>
<td>1</td>
<td>-.537</td>
<td>.230</td>
</tr>
<tr>
<td>[+sem sp, - prag sp]</td>
<td>110</td>
<td>8</td>
<td>.818</td>
<td>.875</td>
<td>.191</td>
<td>.125</td>
<td>1</td>
<td>-1.265</td>
<td>.230</td>
</tr>
<tr>
<td>[-sem sp, +prag sp]</td>
<td>110</td>
<td>8</td>
<td>.831</td>
<td>.875</td>
<td>.188</td>
<td>.375</td>
<td>1</td>
<td>-.983</td>
<td>.230</td>
</tr>
<tr>
<td>[-sem sp, - prag sp]</td>
<td>110</td>
<td>8</td>
<td>.814</td>
<td>.875</td>
<td>.177</td>
<td>.250</td>
<td>1</td>
<td>-.937</td>
<td>.230</td>
</tr>
</tbody>
</table>
Table 100 Tests of within-subjects effects (semantic and pragmatic specificity)

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
<th>Partial Eta Squared</th>
</tr>
</thead>
<tbody>
<tr>
<td>Semantic specificity</td>
<td>1</td>
<td>.021</td>
<td>1.039</td>
<td>.310</td>
<td>.009</td>
</tr>
<tr>
<td>Pragmatic specificity</td>
<td>1</td>
<td>.000</td>
<td>.014</td>
<td>.907</td>
<td>.000</td>
</tr>
<tr>
<td>Semantic specificity*Pragmatic specificity</td>
<td>1</td>
<td>.034</td>
<td>1.701</td>
<td>.195</td>
<td>.015</td>
</tr>
</tbody>
</table>

6.3.4.2 Explicitly stated knowledge (ESK)

To explore whether ‘explicitly stated knowledge of the referent’ (i.e. ESK) has an effect on the accuracy of learners’ use of the indefinite article, the accuracy scores in the [+ESK] and [-ESK] contexts were compared.

Learners’ accuracy in the [+ESK] context was slightly higher than that in the [-ESK] context, as shown in Table 101. The accuracy scores in both contexts were negatively skewed with a clustering of high scores. The results of Wilcoxon signed-rank test indicated that there was no significant difference in accuracy between the [+ESK] context (Mdn = .875) and the [-ESK] context (Mdn = .875), \( T = 1237.000, p = .084 \) (not significant at the .05 level, but approaching borderline significance), \( r = -.116 \) (i.e. a small effect size).

Table 101 Descriptive statistics for accuracy in contexts characterized by ESK

<table>
<thead>
<tr>
<th>ESK</th>
<th>N</th>
<th>N of items</th>
<th>Mean</th>
<th>Mdn</th>
<th>SD</th>
<th>Min.</th>
<th>Max.</th>
<th>Skewness</th>
<th>SES</th>
</tr>
</thead>
<tbody>
<tr>
<td>[+ESK] context</td>
<td>110</td>
<td>8</td>
<td>.832</td>
<td>.875</td>
<td>.154</td>
<td>.375</td>
<td>1</td>
<td>- .875</td>
<td>.230</td>
</tr>
<tr>
<td>[-ESK] context</td>
<td>110</td>
<td>8</td>
<td>.798</td>
<td>.875</td>
<td>.193</td>
<td>.375</td>
<td>1</td>
<td>- .463</td>
<td>.230</td>
</tr>
</tbody>
</table>

The above analysis collapsed semantically specific and non-specific items in the [+ESK] context and in the [-ESK] context. The following analysis teased apart the two values of semantic specificity to explore the potential interaction between semantic specificity and ESK. Descriptive statistics (Table 102) show that the accuracy scores in the four contexts were fairly close, except that the [+sem sp, -ESK] context had a slightly lower accuracy than the other three contexts whose accuracy was all above 80%.
Table 102 Accuracy in contexts characterized by semantic specificity and ESK

<table>
<thead>
<tr>
<th>Semantic contexts</th>
<th>N</th>
<th>N of items</th>
<th>Mean</th>
<th>Mdn</th>
<th>$SD$</th>
<th>Min.</th>
<th>Max.</th>
<th>Skewness</th>
<th>$SES$</th>
</tr>
</thead>
<tbody>
<tr>
<td>[+sem sp, +ESK]</td>
<td>110</td>
<td>4</td>
<td>.823</td>
<td>.750</td>
<td>.177</td>
<td>.500</td>
<td>1</td>
<td>-.485</td>
<td>.230</td>
</tr>
<tr>
<td>[+sem sp, - ESK]</td>
<td>110</td>
<td>4</td>
<td>.775</td>
<td>.750</td>
<td>.269</td>
<td>0</td>
<td>1</td>
<td>-.970</td>
<td>.230</td>
</tr>
<tr>
<td>[- sem sp, +ESK]</td>
<td>110</td>
<td>4</td>
<td>.841</td>
<td>1</td>
<td>.221</td>
<td>.250</td>
<td>1</td>
<td>-1.111</td>
<td>.230</td>
</tr>
<tr>
<td>[- sem sp, - ESK]</td>
<td>110</td>
<td>4</td>
<td>.820</td>
<td>1</td>
<td>.228</td>
<td>.250</td>
<td>1</td>
<td>-1.039</td>
<td>.230</td>
</tr>
</tbody>
</table>

The results of the two-way repeated measures ANOVA (Table 103) indicated no significant main effect of semantic specificity on the accuracy of the indefinite article, $F(1, 109) = 2.599, p = .110$, which is in line with the result of a previous ANOVA analysis of the interaction between semantic specificity and pragmatic specificity. But the main effect of ESK on the accuracy was marginally significant, $F(1, 109) = 3.814, p = .053$. Note that the $p$ value was very close to the .05 cut-off, and the partial eta-squared = .034, indicating a small effect. In terms of interaction, there was no significant interaction effect between semantic specificity and ESK, $F(1, 109) = .523, p = .471$.

Table 103 Tests of within-subjects effects (semantic specificity and ESK)

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>Mean Square</th>
<th>$F$</th>
<th>Sig.</th>
<th>Partial Eta Squared</th>
</tr>
</thead>
<tbody>
<tr>
<td>Semantic specificity</td>
<td>1</td>
<td>.111</td>
<td>2.599</td>
<td>.110</td>
<td>.023</td>
</tr>
<tr>
<td>ESK</td>
<td>1</td>
<td>.128</td>
<td>3.814</td>
<td>.053</td>
<td>.034</td>
</tr>
<tr>
<td>Semantic specificity*ESK</td>
<td>1</td>
<td>.020</td>
<td>.523</td>
<td>.471</td>
<td>.005</td>
</tr>
</tbody>
</table>

Table 104 displays the pairwise comparisons for the main effect of ESK. The results showed that if we ignore the factor of semantic specificity, there was a marginally significant difference in accuracy between the [+ESK] context and the [-ESK] context, $p = .053, r = .184$ (i.e. a small effect size). With 95% confidence, it is estimated that learners’ accuracy in the [+ESK] context, on average, is somewhere between 0.1% lower and 6.9% higher than the accuracy in the [-ESK] context, the mean difference being 3.4%.

Table 104 Pairwise comparisons for the main effect of ESK

<table>
<thead>
<tr>
<th>(I) ESK</th>
<th>(J) ESK</th>
<th>Mean Difference (I-J)</th>
<th>$SE$</th>
<th>Sig.$^a$</th>
<th>95% CI for Difference$^a$</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. [+ESK]</td>
<td>2. [-ESK]</td>
<td>.034</td>
<td>.017</td>
<td>.053</td>
<td>-.001</td>
</tr>
<tr>
<td>2. [-ESK]</td>
<td>1. [+ESK]</td>
<td>-.034</td>
<td>.017</td>
<td>.053</td>
<td>-.069, .001</td>
</tr>
</tbody>
</table>

Note. Based on estimated marginal means
a. Adjustment for multiple comparisons: Bonferroni.
To summarize the main findings in this section,

1. Results of the article choice test indicated that semantic specificity had no effect on the accuracy of the indefinite article, contradicting the results of the GJT in the previous section that indicated that semantic specificity had a significant effect on learners’ accuracy.

2. Pragmatic specificity had no significant effect on the accuracy of the indefinite article.

3. If we ignore the effect of semantic specificity, there was a marginally significant main effect of ESK on the accuracy of the indefinite article. The accuracy in a [+ESK] context was higher than that in a [-ESK] context.

4. There was no significant interaction effect between semantic specificity and pragmatic specificity, or between semantic specificity and ESK.

6.3.5 Generic context

This section will compare learners’ knowledge of the indefinite article, the definite article, and the zero article in the same generic context. Descriptive statistics (Table 105) show that learners’ accuracy in judging the indefinite article to be correct was 58.2%, higher than their accuracy (42.0%) in judging the definite article to be correct. The accuracy in judging the zero article to be incorrect, or in other words, in spotting the article omission error was 73.3%. The difference in the accuracy in the judgment of the three articles in the generic context suggests that learners are, to some degree, aware that before singular countable nouns a visible article is needed, and they are more likely to accept the use of the indefinite article rather than the definite article in the generic context.

<table>
<thead>
<tr>
<th>Generic contexts</th>
<th>N</th>
<th>N of items</th>
<th>Mean</th>
<th>Mdn</th>
<th>SD</th>
<th>Min.</th>
<th>Max. Skewness</th>
<th>SES</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>116</td>
<td>4</td>
<td>.582</td>
<td>.500</td>
<td>.326</td>
<td>0</td>
<td>1</td>
<td>-.296</td>
</tr>
<tr>
<td>the</td>
<td>116</td>
<td>4</td>
<td>.420</td>
<td>.500</td>
<td>.337</td>
<td>0</td>
<td>1</td>
<td>.256</td>
</tr>
<tr>
<td>zero</td>
<td>116</td>
<td>4</td>
<td>.733</td>
<td>.750</td>
<td>.281</td>
<td>0</td>
<td>1</td>
<td>-.795</td>
</tr>
</tbody>
</table>

The learners’ preference for *a* over *the* in the generic context is also reflected in the corrections they supplied. For generic sentences where both *a* and *the* are grammatically correct, learners made more corrections from *the* to *a*, than from *a* to *the*. As shown in Table 106, when correcting ungrammatical sentences with the zero article, learners in total made
35.6% corrections into *a*, and 18.7% corrections into *the*. For grammatical items containing the definite article, learners’ accuracy in judging *the* as grammatically correct was 42.0%, and corrections from *the* into *a* were 43.9% of all the corrections provided.

Article omission in the generic context does not seem to be a serious problem for the middle school participants. It can be seen from the 73.3% accuracy in judging the ungrammatical items with zero article, as well as from the proportion of corrections into the zero article. Compared to the corrections into other articles, the corrections into the zero article did not account for a large proportion.

It is also worth mentioning that the learners are quite familiar with the use of bare plural nouns in the generic context, as reflected by the large number of corrections into bare plurals. Among the corrections provided for the generic *a* context, corrections into bare plurals accounted for 40.7% of all the corrections supplied. Similarly, among the corrections for the ungrammatical items containing the zero article, 43.1% of the corrections were into bare plurals, more than other types of corrections.

<table>
<thead>
<tr>
<th>Generic contexts</th>
<th>Corrections provided (100%)</th>
<th>Total number of corrections</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><em>a</em></td>
<td><em>the</em></td>
</tr>
<tr>
<td><em>a</em></td>
<td>--</td>
<td>.294</td>
</tr>
<tr>
<td><em>the</em></td>
<td>.439</td>
<td>--</td>
</tr>
<tr>
<td>zero</td>
<td>.356</td>
<td>.187</td>
</tr>
</tbody>
</table>

To summarize the findings in this section,

1. In the generic context, learners’ acceptance of *the* was lower than their acceptance of *a*. The judgment accuracy of *the* and *a* was 42.0% and 58.2% respectively.

2. Learners did not commit many omission errors in the generic context, as reflected in their accuracy in judging the omission of article and in the proportion of corrections into the zero article.

3. Learners tended to use the bare plural form in the generic context, as corrections into bare plural nouns constituted a larger proportion of all the corrections than other articles in the generic *a* context and in the ungrammatical zero article context.
6.4 Summary

1. The middle school students had an overall accuracy of 68.2% in the GJT and 81.5% in the article choice test.

2. There was a large difference in the accuracy between grammatical items and ungrammatical items in the GJT. The accuracy for grammatical items was 80.2%, while the accuracy for ungrammatical items was 58.3%, probably due to the scoring method.

3. Results of the GJT showed that syntactic position had an effect on the accuracy of the indefinite article. The accuracy score for the complement position was significantly higher than for both the subject and the object positions, but the generic context aside, the accuracy in the subject position was not significantly different from that in the object position.

4. Results of the GJT showed that semantic context significantly affected the accuracy of the indefinite article. The accuracy in the generic context was significantly lower than that in the non-generic context. Within the non-generic contexts, the accuracy in the semantically specific context was significantly higher than that in the semantically non-specific context, regardless of whether the noun phrase was in the subject or object position.

5. Results of the article choice test indicated that semantic specificity had no significant effect on the accuracy of the indefinite article, unlike the results of the GJT that indicated that semantic specificity had a significant effect on learners’ accuracy. This apparent contradiction will be dealt with in the discussion chapter.

6. Results of the article choice test also showed that pragmatic specificity had no significant effect on the accuracy of the indefinite article.

7. If we ignore the effect of semantic specificity, there was a marginally significant main effect of ESK on the accuracy of the indefinite article. The accuracy in a [+ESK] context was higher than that in a [-ESK] context.

8. In the generic context, learners’ acceptance of *the* was lower than their acceptance of *a*. Learners were to some extent aware that a visible article (i.e. *the* or *a*) is needed before a singular countable noun in the generic context, and therefore did not commit many omission errors. Also, learners were very familiar with using bare plural nouns in the generic context.
Notes

1 The sample subjected to the reliability analysis already excluded the participants who were shown as unreliable by the binomial test (to be reported in a later section).

2 The reliability procedures automatically exclude cases with missing values.

3 In the retest of the GJT, SPSS automatically removed items 20 and 40 (both of which had 100% accuracy), as items possessing zero variance cannot be computed by the statistical procedures.

4 The interpretation of the value of the correlation coefficient follows J. Cohen (1988): $r = .10$ to .29 (small); $r = .30$ to .49 (medium); $r = .50$ to 1.0, as cited in Pallant (2013, p. 139).

5 Note that the binomial test is based on the judgment answer, not taking into account whether the correction is correct or not.

6 The overall accuracy of the GJT only included 44 items targeting the use of the indefinite article.

7 This comparison between grammatical items and ungrammatical items only concerns the non-generic contexts, as the generic context only has grammatical items.

8 Due to the lack of a non-parametric alternative, the factorial repeated measures ANOVA was used. The fact that the accuracy scores in the four contexts were a bit skewed will not affect the results of the ANOVA, as ANOVA is robust against departures from the normality assumption given a large sample size (as mentioned in the previous chapter).

9 The ‘other corrections’ include 25 corrections into definite plural nouns (accounting for 9.2% of the total corrections).
Chapter 7 Discussion

7.1 Introduction

This chapter will bring together results from both the corpus study and the elicitation study and interpret what the results show in relation to the research questions. As some research questions can be answered by both the corpus study and the elicitation study, results from the two studies will be compared. Also, findings from this thesis will be compared to the findings from previous studies and the differences in results will be accounted for. In addition to the discussion immediately related to the research questions, I will also touch upon a number of other issues that are present in the current research, including the relation between general proficiency and the accuracy of the indefinite article, optionality in article usage, and learners’ certainty in their judgement or choice of articles in the task. I will begin my discussion by revisiting the validity and reliability of the methods used in the current research.

7.2 Validity and Reliability

7.2.1 Corpus study

The study developed a system for coding learners’ (mis)uses of the indefinite article in terms of the suppliance of the indefinite article, formal properties of nouns, linguistic contexts of noun phrases, and semantic-pragmatic contexts of noun phrases. The definitions of the grammatical and semantic-pragmatic concepts were formulated following the linguistic and SLA literature reviewed. A number of methods were used to ensure the coding reliability: 1. COCA (Davies, 2008-), a widely used corpus of English which contains more than 520 million words, was consulted to determine ambiguous cases. 2. A native English speaker, who is an experienced EFL teacher, was trained to check one-third of all the coded texts. The overall agreement between the native English speaker and the researcher was 85.66% in the first round of coding, and 89.75% in the second round of coding, showing a satisfactory inter-coding reliability. In fact, some concepts are more difficult to code than others. For example, the inter-coding agreement in semantics-related features such as genericity/semantic specificity is 81.03%, lower than the agreement in noun properties (96.55% for countability and 94.83% for concreteness/abstractness of nouns) and structural constructions (91.38% for
modifiers). The problem lies in the interpretation of semantic contexts, as there is always a certain level of vagueness in the discourse. 3. All the errors of the indefinite article discovered from the sample were additionally checked by three native English speakers, to make sure that all the errors are uncontroversial.

The reliability of the current coding can be regarded as adequate, given the fuzziness of article usage. For example, Lang (2010) reported an inter-coder reliability of 83% in his longitudinal study of the acquisition of the English article system, which also shows the general difficulty in coding articles. The difficulty increased when learners produced awkward collocations, resulting in quite a number of ambiguous cases, which partly explained why not many errors were found in the learner compositions. Another reason why errors were few is that the researcher, in the role of an interpreter of the learners’ compositions, had to accommodate to the way the learners wrote. On many occasions, the choice between the definite article and the indefinite article (or sometimes even the choice between the zero article and the indefinite article with a singular noun) is not a matter of grammaticality but a matter of the speaker’s stance or perspective. If the learner as the writer of the composition chose a certain article instead of others, the reader may understand the context in the way cued by the writer. Therefore, on some occasions it cannot be known whether the learner used the definite article in a meaningful way or simply overused it in place of the indefinite article. These issues, among others that will be discussed later, point to the inherent limits of the corpus study. The second study, which used elicitation instruments, switches the role of the learner and the researcher. Here the learner, i.e. the test-taker, had to interpret the contexts designed by the researcher. Despite the fact that each item is designed to represent a certain semantic context, there is no way to prevent a different interpretation on the part of the learner, especially in the GJT that only provides a limited context. If the learner did not supply the desirable article, no point was awarded. So far it may be said that the corpus study may have erred on the lenient side while the elicitation study may have erred on the strict side. Aware of the fact that each method has its limits, the current researcher made the above-mentioned efforts to improve the reliability of the methods and the statistics showed acceptable reliability for the corpus study and also the elicitation study.

7.2.2 Elicitation study

The study examined different types of validity (i.e. content validity, face validity, and construct validity) of the elicitation instruments (i.e. the GJT and the article choice test). The
content validity of these two instruments is supported by the linguistic definitions, which were arrived at after a review of the linguistic and SLA literature, as well as by the responses from English native speakers participating in the pilot study and the main study. All 25 native speaker participants achieved 100% accuracy in the 32 main items of the article choice test, although they were not all accurate in the GJT. The GJT is more likely to incur disagreement than the article choice test due to a number of reasons (already mentioned in Chapter 5 but briefly repeated here): a limited context, article usage of a low frequency (i.e. the generic use of articles) and potential judgment based on preference rather than on grammaticality. Based on native speakers’ responses in the GJT, the study excluded from the main analysis the four generic items in the form of ‘zero article + a singular noun’, as native speakers corrected this form in different ways (i.e. using a, the or the bare plural form). Thus, they are not valid items for eliciting the use of the indefinite article. Considering that different articles can be used in the generic context, the study analysed the generic context differently from the non-generic contexts, computing the accuracy of the generic context by judgment and focusing on the different forms learners provided in the correction. Except for these four items, all the other items in the GJT had at least an accuracy of above 80% among the native speaker participants, and an overall accuracy of 97.4%. This imperfect accuracy does not damage the content validity of the GJT, as there is always fuzziness about article usage in some contexts and the format of the GJT allows for different interpretations, not to mention the individual differences in the grammar of native English speakers.

In terms of construct validity, it is fairly clear that both the GJT and the article choice test were likely to tap learners’ explicit knowledge rather than their implicit knowledge, as the two instruments did not exert time pressure and therefore offered learners sufficient time to draw on their explicit knowledge, and also the format of the tests drew learners’ attention to form. In terms of face validity, it is ensured by the participants’ familiarity with the test format as a way of testing their knowledge of the articles. Hence, the validity of the elicitation instruments in terms of the above three aspects is established.

The elicitation instruments also demonstrated good internal and external reliability for both groups of participants as shown by the statistical analyses. First, the binomial test was used to assess the extent to which the participants responded differently in the retest and outliers were then removed. In the university group, one outlier was removed from the article choice test; in the middle school group, two outliers were removed from the GJT and one outlier was removed from the article choice test. The Cronbach’s alpha of the GJT and the article choice
test for both groups (with outliers removed) was above .7 or .8, indicating good internal reliability (see Table 107 below for a summary of the main reliability statistics). The Pearson’s correlation coefficient (or the non-parametric counterpart Spearman’s rho) for all the tests was above .5, in fact, mostly above .7, all showing a reasonably strong positive correlation between the accuracy scores of the two test administrations. It can be said that the internal and external reliabilities of the two tests have been well-established. Having discussed the validity and reliability of the methods, I will proceed to discuss how the results answer the research questions.

Table 107 Reliability of the GJT and the article choice test

<table>
<thead>
<tr>
<th>Groups</th>
<th>Tests</th>
<th>N of items</th>
<th>External reliability</th>
<th>Internal reliability</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Cronbach’s alpha</td>
<td>Pearson’s/Spearman’s correlation</td>
</tr>
<tr>
<td>University</td>
<td>GJT</td>
<td>48</td>
<td>.757</td>
<td>.849 (p = .000)</td>
</tr>
<tr>
<td></td>
<td>Choice</td>
<td>32</td>
<td>.825</td>
<td>.869 (p = .000)</td>
</tr>
<tr>
<td>Middle school</td>
<td>GJT</td>
<td>48</td>
<td>.826</td>
<td>.745 (p = .000)</td>
</tr>
<tr>
<td></td>
<td>Choice</td>
<td>32</td>
<td>.825</td>
<td>.543 (p = .002)</td>
</tr>
</tbody>
</table>

7.3 General accuracy of the indefinite article

The accuracy of the indefinite article in the corpus study was high. The rate of suppliance in obligatory contexts (SOC) was 93.0% and the rate of target-like use (TLU) was 91.1%. The accuracy of the indefinite article in the elicitation study was lower than that in the corpus study. The accuracy of the GJT was 73.6% for the university students and 68.2% for the middle school students, and the accuracy of the article choice test was 86.0% for the university students and 81.5% for the middle school students.

The high accuracy of the indefinite article in the learners’ compositions seems to contradict previous findings that the indefinite article is especially difficult to acquire, especially in comparison to the definite article (Lang, 2010; Parrish, 1987; Thomas, 1989), but this can be explained by a number of reasons. First, the corpus study only coded clear obligatory occasions for *a* and clear non-obligatory occasions where *a* was overused. As a result, there were quite a few other occasions that were not analyzed. These occasions included 18 contexts where the learner either omitted an article or a plural marker, and 33 ambiguous contexts. These contexts accounted for 11.5% of all the non-chunks in the corpus study and the exclusion of these contexts naturally reduces the overall error rate.
Second, writing, unlike spontaneous speech, is a controlled form of production which allows learners to draw on their explicit knowledge of the indefinite article. About 24% of the compositions were test compositions and the other compositions were written either in class or after class. Learners can be expected to have been more concerned about the correct form of articles in the test setting and therefore were more likely to use the articles correctly. For the non-test setting, if there was no time limit for the writing task, the learners had more opportunities to deliberate on their writing and could even consult external resources. It is not known how the learners wrote the compositions under the non-test setting but it is quite possible they monitored their use of articles.

Third, the number of errors with the indefinite article is also related to the total number of obligatory occasions for *a*. There are fewer obligatory occasions for *a* than for *the*. In the English native-speaker corpus, the frequency of *the* is more than two times the frequency of *a* in the written registers (Biber, Jacobsson, Leech, Conrad, & Finegan, 1999, p. 267). There were 384 obligatory occasions for *a* in the 101 sampled student compositions in the corpus study. In other words, there were fewer than 4 obligatory occasions per composition. The small number of indefinite article errors is also partly due to the limited number of obligatory occasions.

Fourth, the scores of the test compositions in the corpus ranged from 6 to 15 (i.e. the maximum possible score). The corpus did not include test compositions that were scored below 6, as they contained a lot of incomplete sentences (H. Yang, 2002). The exclusion of poor-quality test compositions from the corpus also reduced the number of errors that could be found in the test compositions.

The learners’ accuracy in the elicitation study was lower than in the corpus study. It should be noted, however, that the two studies involved different participants. The sampled compositions came from university students in different years of their study and also from different universities. The language background of the students contributing to the corpus cannot be determined. The comparison of accuracy between the two studies is based on the assumption that both studies involved Chinese university-level non-English major students of a similar level of proficiency. The lower accuracy in the GJT than in the compositions and also the article choice test is mainly due to two reasons. The GJT contained generic contexts which had a rather low accuracy while the students rarely used *a* for generic meaning in their compositions. Also, the article choice test had no generic contexts, as the article choice test
was only used to investigate the effects of specificity in the current research. The low accuracy in the generic context reduced the overall accuracy of the GJT. Also, the GJT provided an impoverished context which could be subject to different interpretations, while the article choice test and the composition provided more coherent discourse which was conducive to the use of articles. Tarone (1985) pointed out that cohesiveness in discourse facilitates article usage. This also explains why the article choice test and the compositions had a relatively high accuracy.

The higher accuracy in the compositions than in the elicitation study may also be because the students avoided using unfamiliar structures in their compositions and resorted to forms that they were more certain of. Cai and Wu (2006) sampled 30 non-English major university student compositions from the same corpus used by the current research and found that the accuracy in the compositions was higher than in the cloze test they used. They attributed the difference to students’ choice of familiar noun phrases in the compositions.

The general accuracy of the indefinite article should be better viewed in relation to the nature of the task and the type of nominal contexts the task included. It is not informative to look at general accuracy independently of these factors. The effect of task-type on article variation is well-established (Tarone & Parrish, 1988).

### 7.4 The effect of noun properties

This section will answer research question 2, that is, how the countability of nouns and the abstractness/concreteness of nouns are related to learners’ (mis)uses of the indefinite article.

#### 7.4.1 Countability of nouns

The corpus study showed that the university-level learners’ use of the indefinite article was closely related to count nouns. The study compared the percentage of the indefinite article (either occurring in obligatory contexts or in non-obligatory contexts) used with count nouns and its percentage with noncount nouns. The results showed that 98.1% of a total 365 tokens of the indefinite article occurred with count nouns, compared to 1.9% of the total uses of the indefinite article that occurred with noncount nouns. Despite learners’ knowledge that the indefinite article should be used with count nouns (as indicated by the above association), they may still have had some problems in distinguishing between count and noncount nouns, which can be seen in their omission and commission errors. The study found 17 omissions of
a with count nouns and 8 overuses of a for zero article. The corpus study altogether found 35 indefinite article errors (including omission of a, overuse of the for a, and overuse of a for the zero article) from 101 student compositions. Given the total number of errors, the omission errors were most common, accounting for about half of all the errors. It should be noted that whether the learners omitted the indefinite article due to their failure to distinguish between count and noncount nouns, or due to other reasons cannot be determined in the corpus study. Because the corpus study is of an observational nature and also incapable of controlling potential covariates, it is not possible to arrive at clear conclusions regarding the association of errors with certain features. This cautionary remark also applies to all the other subsequent interpretation of the corpus results.

7.4.2 Abstractness of nouns

The corpus study showed that the concreteness/abstractness of nouns was related to learners’ (mis)uses of the indefinite article. The correct suppliance of the indefinite article accounted for 95.6% of concrete nouns and 89.1% of abstract nouns. The Z-test for proportions indicated that the accuracy in concrete nouns was significantly higher than the accuracy in abstract nouns ($z = 2.45, p = .01, r = .13$). There were more omission errors with abstract nouns than with concrete nouns, and there were also more overuses of a for the zero article with abstract nouns.

The study found that the learners were less accurate with abstract nouns than with concrete nouns, but this is not the only way in which the concreteness/abstractness of nouns can affect the accuracy of articles. Trenkic (2002) reported that learners’ accuracy of the indefinite article was higher with abstract nouns than with concrete nouns in her study of four different levels of Serbian learners of English. While admitting that the trend discovered in her study was contrary to the findings of previous research, she speculated that learners may have equated the semantics of the indefinite article with the concept of individuation (i.e. using the indefinite article is an act of putting a grammatical boundary around a concept). It seemed to the learners that putting a grammatical boundary around an abstract concept that originally lacks a boundary is more necessary than putting a boundary around a concrete concept that already has a precise shape. However, it is hard to compare the findings from Trenkic’s study (2002) with the current study for two reasons: 1. Trenkic’s study involved English learners whose first language is Serbian, a different L1; 2. The study used a Serbian-to-English
translation task to elicit article production. It is unknown whether learners may have been influenced by the task itself, for example, the wording of the source language.

The current study cannot determine how the abstractness of nouns reduces learners’ accuracy, but a reasonable assumption is that the abstractness of nouns affects learners’ accuracy through biasing learners’ perceptions of the noun’s countability. It is not hard to see why abstract nouns incur more omission errors, as abstract nouns are ‘typically non-observable and non-measurable’ (Quirk et al., 1985, p. 247), and intuitively unlikely to be counted. In fact, there is indeed ‘a considerable overlap between abstract and noncount’, despite the fact that abstract nouns can be count or noncount, just as concrete nouns can be count or noncount (Quirk et al., 1985, p. 247). It is likely that learners, when unsure of the countability of a noun, tend to treat abstract nouns as noncount nouns. This strategy is effective as there is a fair chance of getting it right given the considerable overlap between abstract nouns and noncount nouns. Nevertheless, it is in fact difficult to get the article right with abstract nouns and also with concrete nouns. Master (1987) reported that countability ‘appeared to cause the most persistent difficulty in article acquisition’ (p. 181). I will illustrate a few article usage rules below to demonstrate the difficulty in distinguishing noun countability.

First, as noted above, the semantic division into concrete and abstract nouns cuts across the grammatical division into count and noncount nouns. The association of abstract nouns with noncount nouns is useful to some extent, as there do not seem to be any clear rules that can help learners determine the countability of a noun. However, learners’ attention should be drawn to the dynamic nature of countability. The same abstract nouns can sometimes be used in both the count form and and the mass form. Here are some examples from Quirk et al. (1985, pp. 247, 286-287):

165. a. She was a beauty in her youth.
    b. She had great beauty in her youth.
166. a. She showed me much kindness.
    b. She showed me many kindnesses.
167. a. Would you like a cake?
    b. No, I don’t like cake.
168. a. Society must be changed by revolution.
    b. Society must be changed by a revolution.
169. a. She played the oboe with sensitivity.
b. She played the oboe with (a) charming sensitivity.
c. She played the oboe with a sensitivity that delighted the critics.

The change from a count form to a mass form will sometimes bring about a notable difference in meaning, such as in 165a, 165b, 166a and 166b. The difference in the lexical meaning makes it relatively easy to distinguish the count and noncount forms. On some occasions, the difference does not lie in the lexical meaning, but in a shift in perspective. The same thing can be seen as a unit or as an undifferentiated mass, as shown in 167a and 167b. In other cases, the count form of the same abstract noun refers to ‘unitary phenomena (such as events)’ and the mass form refers to ‘states, qualities, activities, etc.’ (Quirk et al., 1985, p. 286). To put it simply, the count form represents an instance of the concept that the mass form stands for, as clearly shown in 168a and 168b. So far these shifts between count and mass forms are accompanied with a change in meaning, but the use of articles can be more subtle, as sometimes there is no obvious change in meaning (see 169a-c). Grammarians find it hard to explain why the indefinite article occurs in such cases, but suggest that if the noun refers to a quality attributed to a person or a mental state, and if the noun is pre-modified and/or post-modified (e.g. by an of-phrase or with a complement), it will be more acceptable to use a (Carter & McCarthy, 2006, p. 346; Quirk et al., 1985, p. 287).

These examples have illustrated the ambivalent nature of noun countability. It immediately provokes the question: how can learners be sure of when to use the count form and when to use the mass form as the countability of nouns is so elusive? The above rules only characterize the general phenomena, and cannot help learners decide for the particular nouns they encounter. Unfortunately, the decision on articles with respect to countability is largely a matter of intuition, if not a result of memory, especially in the case of abstract nouns with modification. The following examples from the student compositions will enable us to see the difficulty the learners have dealing with countability.

Omission errors with abstract nouns:

there is [a] challenge,
he has not much money or [a] high position,
his big eyes gave me [a] deep and nice impression,
the classroom was full of [a] light atmosphere,
it’s [a] bad habit, etc.
Overuses of a for the zero article with abstract nouns:

*there is a widening prosperity,*
*I made a great progress,*
*she gave us a strong confidence,*
*there is a great wealth for people in their life,* etc.

It is difficult to decide on the countability of an unmodified abstract noun. The decision mostly relies on the learners’ familiarity with the properties of individual nouns. The presence of modifiers with abstract nouns can complicate the task, as it is hard to decide whether there should be a shift in form. To explain this using the above examples, the noun position in the sense of a person’s level of importance can be either in a count form or a mass form. With the pre-modifier, the indefinite article seems to become obligatory before high position. By contrast, the presence of a pre-modifier does not make it acceptable to use the indefinite article in cases such as *make great progress, there is widening prosperity,* and *she gave us strong confidence.* As mentioned above, the general rules cannot explain the use of articles in particular cases. Learners’ knowledge of the indefinite article, in this regard, will have to accrue through extensive input. Extensive input, however, cannot guarantee adequate intake on the part of the learners. Some formal instruction on noun countability is needed to draw learners’ attention to the dual countability phenomenon and then learners will have to rely on themselves to build up their article usage ability by addressing their own uncertainties and memorizing the cases that they find difficult.

7.5 The effect of linguistic context

This section will address research question 3, that is, how the linguistic contexts of NPs (i.e. the grammatical functions of NPs and the modifiers in the NPs) are related to learners’ (mis)use of the indefinite article.

7.5.1 Grammatical functions of NPs

Both the corpus study and the elicitation study revealed a significant difference in the accuracy of the indefinite article for noun phrases serving different grammatical functions in the sentence. There was a slight difference in the order of accuracy among the different grammatical functions between the corpus study and the elicitation study, but the object
position was shown by both studies to be the most difficult position, and the complement position proved to be relatively easy. I will discuss these grammatical functions below.

7.5.1.1 The effect of grammatical functions in corpus data

The corpus study compared the accuracy of the indefinite article in four grammatical functions (i.e. subject, direct object, complement, and prepositional complement), as they are the main grammatical functions of noun phrases where articles occur. These functions ranked in ascending order of accuracy are: the direct object (89.0%), prepositional complement (92.7%), complement (95.7%) and subject (100%) (refer to the corpus results chapter). The Z-test showed that the accuracy in the subject position was significantly higher than that in the direct object position ($z = 1.93, p = .05, r = .16$). The accuracy in the complement position was also significantly higher than that in the direct object position ($z = -1.94, p = .05, r = -.13$).

The first noticeable feature is that the subject position had a 100% accuracy in the corpus sample. This high accuracy should be viewed with some caution, as there were only 31 obligatory occasions (or 8.9% of a total 348 obligatory occasions for the four major NP positions) for the indefinite article in the subject position from the corpus sample, far fewer than the obligatory occasions for the object and for the complement (i.e. both above 100 occasions). Also, when a learner actually used a form in the composition, this form tended to be a structure that he or she was familiar with. Hence there was a higher accuracy in the subject position (and also in other positions) in the learner composition than in the GJT. Second, the corpus data found that the object position had the lowest accuracy, which coincides with the result of the elicitation study. Another thing to be noted in the corpus data is that the accuracy in the prepositional complement position was relatively high. This suggests that the presence of a preposition before an indefinite noun does not reduce the accuracy of the indefinite article.

Lang (2010) carried out a longitudinal study of the acquisition of the English article system with a young beginner-level Chinese learner nine months after he arrived in the United States. He employed a similar coding system to annotate the learner’s article usage, and thus provided the most comparable data to the current study. He found that most errors of $a$ occurred with complement NPs, and then with the object. The different findings can be attributed to the different analyses. Lang found the most errors with the complement and then the object, but at the same time, he found the most accurate uses of $a$ with the complement
and then the object (pp. 89, 102). This is because NPs in these two grammatical functions are most frequent. Lang did not compute the accurate tokens in relation to the total obligatory occasions as this study did, but reported the relative frequency of errors in different positions. Besides, Lang’s category of complement is actually a combination of the complement and the prepositional complement categories in the current study, and this will increase the number of errors under the complement category. Despite the difference, there is some common ground. The object position had the most errors in terms of relative frequency, as in the current study. Lang’s study also showed that there were very few correct and incorrect uses of the indefinite article in the subject position compared to the object and the complement positions. In his 13 interview datasets collected over 13 months, there were 11 correct uses of *a* in the subject position, accounting for 2.8% of all 389 correct uses in different positions, and there was only 1 incorrect use of *a* in the subject position. The smaller number of indefinite articles in the subject position compared to the object position also reflects the distribution of articles in natural discourse, which will be mentioned again later.

As shown above, the corpus study revealed significant differences in the accuracy (measured as suppliance in obligatory contexts) of NPs in different syntactic positions, but found no significant association between error types (i.e. omission, overuse of *the* for *a*, and overuse of *a* for zero article) and syntactic positions. The small number of errors discovered in the sampled texts limited the power of the corpus study to uncover the potential relationship between error types and syntactic positions. The GJT used in the elicitation study was an experimental effort to explore the effect of syntactic positions on the accuracy of the indefinite article. It overcame the problem of the uneven distribution of obligatory occasions for different syntactic positions in the corpus data, and also it controlled for the properties of nouns used in the test items. All the target nouns in the GJT were concrete nouns, rather than abstract nouns, and they were relatively straightforward in countability (i.e. none of them had a dual-class membership in countability). As the purpose of the GJT was to explore the effect of syntactic positions and semantic contexts on article accuracy, it intentionally avoided the difficulty the students may have had in detecting noun countability to minimize the potential effect of noun properties on the accuracy.
7.5.1.2 The effect of grammatical functions in GJT

The data from the university group and the middle school group showed similar results in terms of the effect of NPs in different syntactic positions on the accuracy of the indefinite article:

1. The university students and the middle school students had the same order of accuracy: the complement position (highest in accuracy), the subject position and the object position (lowest in accuracy). See Table 108 for a summary of the results.

2. The accuracy in the complement position was significantly higher than that in the object position (with a large effect size in both groups). The accuracy in the complement position was also significantly higher than that in the subject position (with a medium effect size in the university group, and a large effect size in the middle school group).

3. The accuracy in the subject position was significantly higher than that in the object position in the university group (with a small effect size), but the difference was not statistically significant in the middle school group.

<table>
<thead>
<tr>
<th>Table 108 Accuracy across syntactic positions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Groups</td>
</tr>
<tr>
<td>University</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Middle school</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

UG: ungrammatical items; G: grammatical items

There are three observations to be made about these results, which will help us better interpret the findings. First, the above comparison of the accuracy in different syntactic positions was restricted to the non-generic contexts. The study showed that when the generic context (which only existed in the subject position) was included, the subject position had the lowest accuracy among the three syntactic positions. It shows that it is the generic context rather than the subject position that brings down accuracy. Excluding the generic context, the subject position had a higher accuracy than the object position. The most difficult syntactic position is the object, which is supported by the same finding from the corpus study.
Second, accuracy as defined in the current research was based on the scores for ungrammatical items. The study found that learners’ scores for the grammatical items were much higher than the scores for the ungrammatical items. In the case of university students, the average accuracy for the grammatical items was 84.3%, as opposed to 73.2% for the ungrammatical items. The difference was also evident in the accuracy for each syntactic position. The accuracy for ungrammatical items in each syntactic position was always lower than that for grammatical items in the same syntactic position (see Table 108). The difference can be largely attributed to the different scoring methods: the grammatical items were scored on the basis of judgment alone while the ungrammatical items were scored on the basis of both correct judgment and correct correction. This shows that the accuracy for the grammatical items, which is very likely to be inflated by guessing, is only a partial reflection of the learners’ knowledge of the indefinite article. Therefore, the above analyses were based on the accuracy scores for the ungrammatical items, but the study also compared the accuracy across syntactic positions using the accuracy for grammatical items. The results showed the same pattern: for both groups of students, the accuracy in the complement position was significantly higher than that in the subject position and object position. However, the accuracy in the subject position was not significantly higher than that in the object position for the university students, and there was no difference in accuracy between the subject position and the object position for the middle school students. This is probably because when the scores were based on the grammatical items, the accuracy in the subject position and the object position both became higher, and the original small difference disappeared.

Third, the calculation of the accuracy scores for the subject position and the object position included both specific and non-specific items, while the complement position only had non-specific items. Nevertheless, the above reported order of accuracy still stands when all the positions contain only non-specific items to rule out the potential confounding factor of specificity. It shows that being non-specific is not the reason why the complement position is easier than the other syntactic positions for the use of the indefinite article. I will explain below why the accuracy differs among the three syntactic positions.

**Complement**

A probable explanation for the highest accuracy in the complement is that the NPs in this position are usually associated with a specific grammatical structure and these structures are very frequently used. For example, the items for the complement position in the GJT involve two structures: copular verb *be* + NP, and copular verb *become* + NP. Patterns like ‘...be a...’
and ‘...become a...’ are familiar lexical bundles, and their high frequency is very conducive to acquisition. The corpus study also found these two frequently occurring structural patterns. Another pattern associated with the complement position found in the corpus study is the existential *there* construction. It should be noted that the indefinite article is not tied to these structures. One can also use ‘...be the...’, ‘...become the...’, or ‘*there be the...*’, depending on the context, but the communicative importance of ‘...be a...’, ‘...become a...’ and ‘*there be a...*’ in introducing, defining, and presenting a concept makes these constructions extremely familiar to the learners and thus learners are unlikely to misuse the indefinite article on these occasions. The high accuracy in the complement position is also found in a number of other studies. Although these studies did not purposefully look at the effect of syntactic position on the accuracy of the indefinite article, their data supported the finding of the current study. Robertson (2000) used a referential communication task to elicit speech samples from 18 Chinese learners of English. He found that the existential sentences had the highest accuracy (95%) among the different types of the indefinite environments produced by the learners. Snape (2009) used an oral elicited picture description task with 38 adult L1 Chinese speakers living in Canada. The participants produced 11 existential *there* constructions and the indefinite article was always supplied. Zhou’s (2008) GJT test involved senior middle school and university students of different English proficiencies. His study found that the learners had a high accuracy in judging the indefinite article in the complement position (defined as the non-referring position in his study). The items for this context in Zhou’s GJT all occurred in the form of ‘... is a + singular noun’ or ‘... is + singular noun’. This simplified structure made it even easier for learners to judge the indefinite article correctly. It is not surprising that in Zhou (2008) the accuracy in judging the grammatical form for all levels of students was above 97%, and the accuracy in judging the ungrammatical form was near to or above the 90% level. It further shows the effect of lexical bundles on the use of the indefinite article.

**Subject and object**

Compared to the complement position, NPs in the subject and the object position do not seem to have any structural features, or to be specific, frequently occurring constructions. In this regard, they can be equally difficult, but both the corpus study and the elicitation study showed that the accuracy in the object position was lower than that in the subject position (aside from the generic context). The results of the GJT for the university group indicated that the accuracy in objects was significantly lower than that in subjects, \( p = .021, r = .225 \) (i.e. a small effect size). This difference was not significant in the middle school group, \( p = .144, \)
which suggests that the effect of syntactic position on the accuracy of the indefinite article is less obvious for middle school students, compared to university students.

Why does the object position incur more errors than the subject position? To answer this question, we first need to look at what types of errors the students made in the subject and object positions. In the GJT, the subject position and the object position each have 8 items in the ungrammatical form. Half of the ungrammatical items are shown in the form of ‘zero article + singular noun’ and the other half in the form of ‘the + singular noun’. The learners’ corrections for the ungrammatical items are categorized into a, zero article, the, bare plural (e.g. monkeys), the plural (e.g. the monkeys), other corrections (e.g. a demonstrative or a lexical rephrasing) and no correction (labelled NC), as shown in Table 109. If a learner judges the ungrammatical zero article to be correct, this response indicates the learner’s acceptability of the zero article and therefore it counts as a use of the zero article. Similarly, if a learner judges the ungrammatical definite article to be correct, this counts as a use of the definite article. Table 109 is a summary of the different forms the learners used in the subject and object positions in the indefinite environment.

**Table 109 Learners’ use of articles in different syntactic positions**

<table>
<thead>
<tr>
<th>Groups</th>
<th>Syntactic positions</th>
<th>a (%)</th>
<th>zero (%)</th>
<th>the (%)</th>
<th>bare plural (%)</th>
<th>the plural (%)</th>
<th>others (%)</th>
<th>NC (%)</th>
<th>total</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>University</td>
<td>Subject</td>
<td>71.2</td>
<td>4.7</td>
<td>23.0</td>
<td>0.1</td>
<td>0.2</td>
<td>0.4</td>
<td>0.5</td>
<td>832</td>
<td>104</td>
</tr>
<tr>
<td></td>
<td>Object</td>
<td>65.3</td>
<td>14.2</td>
<td>14.8</td>
<td>5.6</td>
<td>0.0</td>
<td>0.0</td>
<td>0.1</td>
<td>832</td>
<td>104</td>
</tr>
<tr>
<td>Middle school</td>
<td>Subject</td>
<td>52.4</td>
<td>6.1</td>
<td>28.9</td>
<td>8.2</td>
<td>2.0</td>
<td>1.7</td>
<td>0.6</td>
<td>928</td>
<td>116</td>
</tr>
<tr>
<td></td>
<td>Object</td>
<td>49.4</td>
<td>6.3</td>
<td>15.3</td>
<td>23.1</td>
<td>2.4</td>
<td>3.2</td>
<td>0.4</td>
<td>928</td>
<td>116</td>
</tr>
</tbody>
</table>

As shown in the table, in the university group, the majority of the errors in the subject position were overuses of the definite article for the indefinite article (23.0%), and there was only a small proportion of omission errors (4.7%). In the object position, there was about the same proportion of overuses of the (14.8%) and omissions (14.2%). Compared to the subject position, the proportion of overuses of the decreased by about 10%, but the omission errors increased by about 10% in the object position. The Z-test for proportions showed that the proportion of overuses of the for the indefinite article was significantly higher in the subject position than in the object position ($z = 4.260$, $p = .000$, $r = .104$, a small effect size), and the proportion of omission errors (i.e. the use of the zero article) was significantly higher in the object position than in the subject position ($z = -6.625$, $p = .000$, $r = -.162$, a small effect size).
The reverse trend indicates that the subject position and the object position are susceptible to different types of errors. In addition to the omissions and overuses of *the*, the proportion of bare plurals increased by about 5% in the object position. Compared to the subject position which had considerably more overuses of *the* than the object position, the object position had both a large number of omissions and overuses of *the*, as well as a greater number of bare plural uses. These three forms substituted for the use of the indefinite article and collectively lowered the accuracy in the object position.

In the middle school group, the error types showed a similar trend in relation to the syntactic positions. The overuses of *the* for the indefinite article occurred a lot in both the subject position (28.9%) and the object position (15.3%), but the proportion of overuses of *the* was significantly higher in the subject position than in the object position ($z = 7.050$, $p = .000$, $r = .164$, a small effect), supporting the same finding in the university group. The difference between the university group and the middle school group is that the middle school learners had about an even proportion of omissions in the subject position (6.1%) and in the object position (6.3%), and both were not high. Instead, the middle school learners used a lot of bare plural forms in the object position (23.1%). The middle school students had fewer omission errors in the object position than the university students, but they used far more bare plurals. The large number of substitutions of the indefinite article by the bare plural form suggests that this may be a strategy for the learners to avoid using the indefinite article. In the case of middle school students, the low accuracy in the object position is mainly attributed to a large number of bare plurals and a fair number of overuses of *the*.

To summarize the error patterns in the two groups, the subject position mainly incurred the overuse of the definite article for the indefinite article, while in the object position different types of errors occurred: the omission of *a*, the overuse of *the* and the bare plural form, which explains why the accuracy of the indefinite article in the object was lower than that in the subject position.

The observed patterns prompt us to ask further questions about the association between error types and the syntactic positions. The first question is: why do learners tend to overuse the definite article in the subject position? This may be related to the fact that the subject is overwhelmingly definite in discourse. It is generally recognized among linguists that the subject and other preverbal positions in an SVO language have a strong tendency for definite expressions (Chen, 2004, p. 1166; Givón, 1984, p. 422). This, however, is not a grammatical
restriction, but a generalization based on text frequencies. For example, in English the subject position admits both definite and indefinite expressions. The fact that the subject position is predominantly definite is manifested in native speaker corpora. It should also be noted that definite expressions are not limited to NPs using the definite article. Although a definite expression can be a proper noun, a personal pronoun as well as a definite NP using definite determiners like the definite article, it is also true that the use of the definite article also demonstrates a strong inclination to be in the subject position. The Longman Grammar of Spoken and Written English (Biber, Jacobsson, et al., 1999) observes that the relative frequency of definite articles is much higher in the subject position than in the object position based on analysis of a 40-million-word corpus of texts representing different registers (p. 269). For example, in both academic prose and news, the relative frequency of definite articles versus indefinite articles in the subject position is 85% versus 15%. In fiction, the relative frequency of definite articles in the subject position is 80%, compared to 20% of indefinite articles. The proportional use of definite and indefinite articles varies slightly depending on genres, but the strong inclination of subject to be definite is clear. By comparison, the object position does not have an obvious tendency to have the definite or indefinite article. In news and academic prose, the relative frequency of definite articles versus indefinite articles in the object position is 55% versus 45%, and it is 50% versus 50% in fiction, according to the same corpus source. The large discrepancy in frequency between the definite article and the indefinite article in the subject position is very likely to affect learners’ use of articles. In addition, learners may also be affected by the same phenomenon in L1. It has also been established in literature that the subject position in Chinese is inclined to be definite (Chen, 2004; Chu, 2005). To sum up, L2 learners are very likely to understand the indefinite subject in the GJT items to be definite and overuse the for a due to the definiteness-inclined nature of the subject in both L1 and L2 and also due to the predominant frequency of the definite article in the subject position in L2.

The second question is: why is the object position prone to different types of errors (i.e. omissions, overuses of the for a, and the bare plural form)? One reason is that the object position in English does not have an obvious preference for definite NPs or indefinite NPs, as already shown above in the relative frequency of the and a in the object position in the English native speaker corpus. The syntactic position of the NPs does not seem to bias learners’ use of articles toward the definite form (i.e. the) or the indefinite form (i.e. zero + singular noun and zero + plural noun). The object position has a large proportion of overuse
of the in both groups (i.e. about 15% in each group), and it has an even larger proportion of the zero article (including bare plurals).

It follows naturally to ask: why does the object position promote a higher proportion of the zero article (or the absence of the indefinite article)? My tentative explanation is that learners may associate the indefinite article with the indefinite determiner yi + classifier in Chinese. I will expand on how this association is established in the discussion of semantic contexts in a later section, as the role of L1 transfer can not only explain the error patterns in different syntactic positions, but also the errors in relation to semantic specificity. Here let us focus on the syntactic positions. Yi can often be omitted in the post-verbal object position, while it cannot be omitted from the subject position, according to Lü (2002, p. 163). To clarify, the claim that yi cannot be omitted from the subject position is based on the assumption that it can be used as subject in the first place. The use of yi + classifier has its restrictions in Chinese, which will be referred to in a later section on the effect of genericity. In contexts where yi + classifier can occur as subject, yi cannot be omitted. This is also a potential negative influence from L1 that may give rise to more omission errors in the object position than in the subject position.

Another minor question is: why did the learners use more bare plurals (i.e. ‘zero + plural noun’) in the object position than in the subject position? This is probably because the pre-verbal position imposes a number agreement between the subject and the verb, which limits the use of the plural noun in the subject position when the verb is singular, while the post-verbal position has no such restriction on number. Also, the subject verb agreement rule may raise learners’ awareness of the determiner before the noun in the subject position and it may help reduce the omission errors in the subject position.

This section has proposed possible reasons for the effect of grammatical functions or syntactic positions on the accuracy of the indefinite article. Learners’ accuracy varies across syntactic positions. The highest accuracy in the complement position is mainly attributed to the familiar lexical bundles that occur in the complement position and the communicative importance of these formulaic constructions. The accuracy in the subject position is higher than that in the object position in the GJT. This difference in accuracy is significant in the university group but not significant in the middle school group, which indicates that the magnitude of this difference is small and its effect on different levels of students is not the same. What is more important is that subject and object attract different types of errors. The
association between error types and syntactic positions may be related to the relative frequency of articles in different positions, the semantic inclination of different positions, and L1 transfer.

7.5.2 Modification of NPs

The corpus study showed that modification of NPs (i.e. whether a noun was modified or not) had no effect on the accuracy of the indefinite article. The accuracy of the indefinite article in modified NPs (having either pre-modifiers and/or post-modifiers) was 93.0%, the same as the accuracy in unmodified NPs. The study also found no association between error types and whether a noun was modified or not. In particular, the Z-test revealed that there was no significant difference in the proportion of commission errors (i.e. overuses of the for a) between unmodified NPs (i.e. 2.6%) and pre-modified NPs (i.e. 2.8%) ($z = -.10, p = .92, r = .01$). The current study found that the existence of pre-modifiers had no significant effect on learners’ commission errors, thus failing to support Butler’s (2002) observation that learners are likely to overuse the definite article for the indefinite article with nouns that are modified by an adjective. Butler interviewed 80 Japanese college students of varying levels of English proficiency to elicit their explicit knowledge of article usage. There were some students who reported using the definite article simply because there was an adjective before the noun. Butler reasoned that these students wrongly associated the specific meaning with the definite article, and they relied heavily on syntactic or structural cues such as the presence of modifiers to decide whether a referent was specific. This association of adjectives with the definite article seems to be an idiosyncratic hypothesis on the part of lower-level learners. It is expected that as learners become more proficient, they will rely less on the structural cues but more on the semantic meaning of the context to decide which article to use.

It should also be noted that post-modifiers such as that-clause and of-clause are more likely than adjectives to give rise to the overuse of the, as they can help narrow down the reference and make the referent more identifiable. Zhu (2009) used a written test composed of blank-filling, error correction, and cloze items with first-year and third-year Chinese English major students. His study showed that learners of both proficiency levels overused the in place of a with nouns modified by a that-clause or of-clause. Butler (2002) also reported learners’ explicit knowledge that the should be used when a referent has such structural post-modifiers. The current study cannot answer whether such structures have an effect on learners’ accuracy of the indefinite article, as there were few NPs modified by a that-clause in the learner
compositions, and the *of*-clause modifiers that the learners used were mostly in a partitive or possessive sense that were unlikely to incur the overuse of *the*.

7.6 The effect of semantic contexts

This section will address research question 4, that is, whether the semantic contexts of NPs (i.e. specific, non-specific, and generic contexts) are related to learners’ (mis)use of the indefinite article. The corpus study and the elicitation study point to the same conclusion: the semantic contexts of NPs are closely related to the accuracy of the indefinite article. Learners are more accurate in using the indefinite article in a semantically specific context than in a semantically non-specific context. The accuracy in the generic context is much lower than that in the non-generic contexts (i.e. specific and non-specific contexts combined). I will discuss the effect of semantic specificity and genericity separately below. As this section only relates to semantic specificity, I will refer to this notion just as ‘specificity’ in the following discussion.

7.6.1 Semantic specificity

The corpus study found that the accuracy in the specific context (96.3%) was significantly higher than the accuracy in the non-specific context (90.9%) (\(z = 1.92, p = .05, r = .10\)). There was also an association between error types and specificity. In obligatory contexts there were more errors (either omission or commission errors) in the non-specific context than in the specific context. In contrast, in non-obligatory contexts there were more errors (i.e. overuses of *a* for the zero article) in the specific context than in the non-specific context. By calculating the odds ratio, we also know that in a specific context learners are about 7 times more likely to overuse *a* for the zero article than in a non-specific context, or conversely, in a non-specific context learners are about 7 times more likely not to use *a* than in a specific context. This relationship between error types and specificity further indicates that learners seem to have associated the use of the indefinite article with the specific meaning. The specific context promotes the use of the indefinite article in both the obligatory and non-obligatory occasions. In the case of the obligatory occasions, it is a correct use, but in the case of the non-obligatory occasions, it is an overuse of *a* for the zero article.

The above finding in the corpus study is confirmed by the GJT, which also found that the accuracy in the specific context was significantly higher than in the non-specific context. This difference was not only significant, but also had a large effect size: \(r = .670\) in the university
The positive effect of the specific meaning on the accuracy of the indefinite article is, however, contrary to several previous studies that showed an adverse effect of specificity on the accuracy of the indefinite article. Earlier studies (inter alia, Butler, 2002; Huebner, 1983; Parrish, 1987; Thomas, 1989; Zhou, 2008) indicated that learners tended to overuse *the* in place of *a* in the specific indefinite context (or defined as [+SR, -HK] by Huebner’s (1983) semantic wheel), resulting in a lower accuracy of *a* in the specific context. By contrast, the current research showed that the specific context actually helped the accuracy of the indefinite article, and the use of the definite article was lower in the specific context than in the non-specific context.

To help us better interpret this phenomenon, let us look at what kind of articles the learners used in the GJT (including the forms they judged as correct and the forms they supplied as a correction). Table 110 summarizes the different types of articles the learners used in terms of the specificity of the context.

<table>
<thead>
<tr>
<th>Groups</th>
<th>Semantic specificity</th>
<th>a (%)</th>
<th>zero (%)</th>
<th>the (%)</th>
<th>bare plural (%)</th>
<th>the plural (%)</th>
<th>others (%)</th>
<th>NC (%)</th>
<th>total (%)</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>University</td>
<td>Specific</td>
<td>77.2</td>
<td>7.2</td>
<td>13.5</td>
<td>1.6</td>
<td>0.0</td>
<td>0.1</td>
<td>0.5</td>
<td>83.2</td>
<td>104</td>
</tr>
<tr>
<td></td>
<td>Non-specific</td>
<td>59.3</td>
<td>11.7</td>
<td>24.3</td>
<td>4.2</td>
<td>0.2</td>
<td>0.2</td>
<td>0.1</td>
<td>83.2</td>
<td>104</td>
</tr>
<tr>
<td>Middle school</td>
<td>Specific</td>
<td>61.1</td>
<td>8.4</td>
<td>16.7</td>
<td>8.3</td>
<td>2.2</td>
<td>2.9</td>
<td>0.4</td>
<td>92.8</td>
<td>116</td>
</tr>
<tr>
<td></td>
<td>Non-specific</td>
<td>40.6</td>
<td>4.0</td>
<td>27.5</td>
<td>23.0</td>
<td>2.3</td>
<td>2.0</td>
<td>0.6</td>
<td>92.8</td>
<td>116</td>
</tr>
</tbody>
</table>

Three noticeable patterns can be seen from Table 110. First, the proportional use of the indefinite article was higher in the specific context than in the non-specific context for both groups. As the indefinite article is the target form, this proportion corresponds to the accuracy rate. This discrepancy in accuracy between the specific context and the non-specific context has already been mentioned above. Second, the proportion of overuses of *the* for *a* in the non-specific context was much higher than that in the specific context. It holds true for both groups of students and the difference in proportion was about 10% in each group. This pattern is opposite to earlier findings, as already mentioned above. Third, the use of the zero
article increased in the non-specific context compared to the specific context. Note that in the middle school group, learners did not make many omission errors (i.e. using ‘zero + singular noun’), but they used considerably more bare plural forms (i.e. using ‘zero + plural noun’). These two forms both count as the use of the zero article, or in other words, the absence of a surface article.

The above error patterns showed that the lower accuracy of the indefinite article in the non-specific context was due to a higher proportion of the zero article and a higher proportion of the definite article in this context. Despite differences from preceding studies, the error patterns shown in the current study are explainable. Let us first focus on the omission errors. The large number of omission errors can be attributed to L1 transfer. In the first place, the Chinese language does not compulsorily request a morpheme to mark nouns. Any noun in Chinese is syntactically also a NP (Krifka et al., 1995, p. 67). For example, a bare noun xiongmao (meaning ‘panda’) can function as a panda, pandas, the panda, etc., depending on the context. The absence of articles in Chinese can account for omission errors in general, but it cannot explain why omission of a is greater in the non-specific context than in the specific context. The answer here, however, is also L1 transfer, but in a different way. It is likely that learners have associated the English indefinite article with the indefinite expression yi ‘one’ + classifier in Chinese. Learners’ mis-identification of the English indefinite article with yi ‘one’ + classifier is reasonably justifiable, because linguists hold that yi is beginning to function like the indefinite article (Chen, 2004; C. N. Li & Thompson, 1989, p. 132). To be more specific, ‘the numeral yi in Chinese has undergone the full process of grammaticalization, and has developed into an a-like indefinite article’ (Chen, 2004, p. 1162). Chen observed that the process of grammaticalization that yi + classifier has undergone is very similar to the way the English indefinite article developed from the numeral ‘one’. There are five stages of development from numeral ‘one’ to a grammatical indefiniteness marker: a numeral, a presentative marker, a specific marker, a non-specific marker, and a generalized article (Heine, 1997). The evolution of the English indefinite article will help us understand the characteristics of the Chinese equivalent, and therefore facilitate our understanding of learners’ errors related to the indefinite article.

The evolution of the indefinite article not only in English, but also in various other languages undergoes five stages. The indefinite article originally derived from numeral ‘one’, which is the first stage of its development into the indefinite article. At this stage, this item has an exclusive function of being used as a numeral. The second stage is featured by a presentative
function of the indefinite article. The article serves to introduce a new referent into the discourse and this new referent will be talked about in the subsequent discourse. Hence the label ‘presentative marker’. At the third stage, the indefinite article is not limited to the presentative function, but it can be used to refer to any referent known to the speaker but unidentifiable to the hearer, regardless of whether this referent is the topic of the subsequent discourse. Note that at this stage the indefinite article can only be used to refer to a specific referent, but not to a non-specific referent (i.e. denoting any member of a class). Later at the fourth stage, the indefinite article extends its use to non-specific referents. The fifth stage is reached when the indefinite article is used on all types of nouns: plural and mass nouns as well as singular nouns, because at this stage the association of the indefinite article with numeral ‘one’ is lost and the indefinite article can be used in a generic sense. The use of the indefinite article with plural nouns is not present in English, but it is seen in other languages like Spanish. Despite this, the English indefinite article shows characteristics of this stage as the English indefinite article can also be used for generic meaning. This process of the grammaticalization of the indefinite article is also captured by Givón (1981; 1984, p. 433), who proposed a three-step evolutionary scale: quantification > referentiality/denotation > genericity/connotation. The quantification stage corresponds to the above-described first stage in Heine’s (1997) model, the referentiality/denotation stage largely corresponds to the second, third and fourth stages, and the genericity stage corresponds to the fifth stage. Both models illustrate the diachronic change in meaning of the indefinite article.

Chen (2004) demonstrated that yi + classifier in Chinese has shown characteristics of each of the five stages in the grammaticalization process of the indefinite article. I will skip examples in the Chinese language here, but see Chen (2004, p. 1160). Though yi + classifier has not been fully grammaticalized morphologically, it has developed all the uses of the indefinite article in a semantic sense. Therefore, it is not surprising that learners will associate the English indefinite article with yi + classifier in Chinese. Learners may carry over the usage of yi + classifier to English, and there is the rub. Chinese yi differs from the English indefinite article in one important aspect: yi can be omitted depending on the context while a is a compulsory morpheme that precedes an indefinite count noun. When learners are not aware that the indefinite article in English is a mandatory feature, omission errors occur. This explains why learners omit the indefinite article. The reason why learners tend to omit a more in the non-specific context rather than in the specific context may be related to the optionality of yi in the non-specific context. Lü (2002) observed that yi is more likely to be omitted as a
non-specific marker than a specific marker. Lü summarized the various conditions where yi can or cannot be omitted. I will list some of the conditions relevant to the current research: 1. When the speaker makes a specific reference, rather than referring to any member of a class, yi is usually not omitted. In other words, yi is more likely to be omitted when the referent is non-specific. 2. The omission of yi is related to syntactic positions. It can often be omitted in the object position, but it cannot be omitted in the subject position, which has already been mentioned earlier in the discussion of syntactic positions. 3. When yi conveys a strong sense of quantification (i.e. resembling the meaning of numeral ‘one’ in English), it cannot be omitted. In addition to Lü’s (2002) findings, Chen (2004) further proposed that the further down the grammaticalization continuum of the uses of the indefinite article as defined in Heine’s (1997) five-stage model, the more likely it is for yi to be omitted. In other words, in the quantificational sense (i.e. in stage 1), yi must be stressed. It is more natural to keep than to omit yi in the specific context (i.e. stages 2 and 3), but it becomes natural to omit yi in the non-specific context (i.e. stage 4), and it is even better to omit yi in the generic context (i.e. stage 5). As we can see, the different degrees of optionality of yi in Chinese correspond to the omission patterns in learners’ use of the indefinite article. Learners tend to supply the indefinite article in the specific context and use the zero article in the non-specific context, hence the higher accuracy in the specific context and the higher proportion of the omission errors in the non-specific context. Shi (2010), albeit with a very small sample, also observed that learners were more accurate in using the indefinite article with specific referents that could be translated into noun phrases with yi + classifier in Chinese than with non-specific referents whose translation in Chinese do not require yi + classifier.

Another issue left unexplained is why the non-specific context also attracts a greater number of overuses of the than the specific context. The most plausible explanation is that the learners mistakenly used the definite article generically. It is better illustrated with typical items where the overuse of the occurs from the GJT:

Item 22. If you want to see panda, the best place to go is China.

Item 42. I have never seen the lion. I wish I could see one.

Item 46. The knife is what I am looking for. Can you give me one?

The nouns denoting species in item 22 and item 42 are very suggestive of a generic interpretation. Learners probably intended to refer to the class of things by using the definite
article, unaware that the use of the definite article for a generic reference is limited to certain contexts. Here the definite NP can only refer to an individual that is identifiable to both the speaker and the listener. Similarly in item 46, learners may have understood ‘the knife’ as the category of knives, as opposed to other things. The reason why learners associated the with generics rather than simply omit the article due to L1 transfer is probably that they were already aware that articles should be used and omission is an error.

To summarize the effect of semantic specificity, the current research found that learners are more familiar with the specific use of the indefinite article, as the accuracy in the specific context is significantly higher than that in the non-specific context. In the non-specific context, learners either used the zero article or the definite article in place of the indefinite article. The omission errors can be attributed to L1 transfer and the overuse errors may result from learners’ association of the definite article with generic meaning.

### 7.6.2 Semantic specificity and syntactic position combined

I have discussed the effect of semantic specificity and syntactic positions separately. This section will discuss their combined effect. The results of GJT for the university group indicated a significant interaction between (non-)specificity and syntactic positions. Syntactic positions had a different effect on the accuracy of the indefinite article depending on specificity. In a specific context, the accuracy in the object position (79.3%) was slightly higher than that in the subject position (75.0%); in a non-specific context, the accuracy in the object position (51.2%) was markedly lower than that in the subject position (67.3%). While the difference in accuracy between subject and object was significant ($p = .000$) in the non-specific context, the difference in the specific context was not significant ($p = .121$). The interaction between specificity and syntactic position was not significant in the middle school group. In both the specific and non-specific contexts, the accuracy in the subject position was higher than that in the object position.

It is hard to interpret how the interaction between specificity and syntactic position occurs and whether indeed there is any interaction at all. It would be more informative to look at the change in accuracy through how the combination of (non-)specificity and syntactic positions affects error patterns. Table 111 and Table 112 categorized learners’ use of articles (including the forms they judged as correct and the forms they supplied as corrections in the GJT) in different syntactic positions according to (non-)specificity. We can see the distribution of error types in each of the four contexts defined by specificity and syntactic position.
Table 111 University students’ use of articles across semantic and syntactic contexts in the GJT

<table>
<thead>
<tr>
<th>Contexts (university)</th>
<th>a (%)</th>
<th>zero (%)</th>
<th>the (%)</th>
<th>bare plural (%)</th>
<th>the plural (%)</th>
<th>others (%)</th>
<th>NC (%)</th>
<th>total (%)</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>nonspecific, object</td>
<td>51.2</td>
<td>18.3</td>
<td>22.4</td>
<td>8.2</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>100%</td>
<td>416</td>
</tr>
<tr>
<td>nonspecific, subject</td>
<td>67.3</td>
<td>5.0</td>
<td>26.2</td>
<td>0.2</td>
<td>0.5</td>
<td>0.5</td>
<td>0.2</td>
<td>100%</td>
<td>416</td>
</tr>
<tr>
<td>specific, object</td>
<td>79.3</td>
<td>10.1</td>
<td>7.2</td>
<td>3.1</td>
<td>0.0</td>
<td>0.0</td>
<td>0.2</td>
<td>100%</td>
<td>416</td>
</tr>
<tr>
<td>specific, subject</td>
<td>75.0</td>
<td>4.3</td>
<td>19.7</td>
<td>0.0</td>
<td>0.0</td>
<td>0.2</td>
<td>0.7</td>
<td>100%</td>
<td>416</td>
</tr>
</tbody>
</table>

Table 112 Middle school students’ use of articles across semantic and syntactic contexts in the GJT

<table>
<thead>
<tr>
<th>Contexts (middle school)</th>
<th>a (%)</th>
<th>zero (%)</th>
<th>the (%)</th>
<th>bare plural (%)</th>
<th>the plural (%)</th>
<th>others (%)</th>
<th>NC (%)</th>
<th>total (%)</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>nonspecific, object</td>
<td>38.1</td>
<td>3.4</td>
<td>18.3</td>
<td>35.6</td>
<td>2.4</td>
<td>1.7</td>
<td>0.4</td>
<td>100%</td>
<td>464</td>
</tr>
<tr>
<td>nonspecific, subject</td>
<td>43.1</td>
<td>4.5</td>
<td>36.6</td>
<td>10.3</td>
<td>2.2</td>
<td>2.4</td>
<td>0.9</td>
<td>100%</td>
<td>464</td>
</tr>
<tr>
<td>specific, object</td>
<td>60.6</td>
<td>9.1</td>
<td>12.3</td>
<td>10.6</td>
<td>2.4</td>
<td>4.7</td>
<td>0.4</td>
<td>100%</td>
<td>464</td>
</tr>
<tr>
<td>specific, subject</td>
<td>61.6</td>
<td>7.8</td>
<td>21.1</td>
<td>6.0</td>
<td>1.9</td>
<td>1.1</td>
<td>0.4</td>
<td>100%</td>
<td>464</td>
</tr>
</tbody>
</table>

Non-specific object

With a non-specific noun in the object position (i.e. [nonspecific, object]), the proportional uses of the zero article (including bare plurals) and the definite article were both high. In the university group, there was an 18.3% of ‘zero + singular noun’, an 8.2% of ‘zero + plural noun’, and a 22.4% of the overuse of the. In the middle school group, there was a 3.4% of ‘zero + singular noun’, a 35.6% of ‘zero + plural noun’, and an 18.3% of the overuse of the. Results from both groups showed a high proportion of the zero article and the definite article. This is because the non-specific context is prone to both omission errors (including ‘zero + singular noun’ and ‘zero + plural noun’) and the overuse of the. In addition, the object position is also likely to cause omission errors, as already explained in the previous sections. Due to multiple difficult features, the non-specific object context had the lowest accuracy in both groups (i.e. 51.2% in the university group and 38.1% in the middle school group). It echoes the findings from the corpus study, which found that the omission and commission errors were most likely to occur with nouns which were object and non-specific. The corpus study arrived at this conclusion from analysing the errors from learner compositions, while
the GJT elicited learners’ judgement and correction by artificial items, and the findings from different approaches lend support to each other.

**Non-specific subject**

With a non-specific noun in the subject position, there was a considerable proportion of overuses of *the*: 26.2% in the university group and 36.6% in the middle school group. It is not surprising as both the non-specific context and the subject position are liable to overuse of the definite article. Also, the non-specific context could give rise to omission errors, but omission errors in non-specific subjects were not as frequent as in non-specific objects, the latter of which had two factors that made omissions more likely.

**Specific object and specific subject**

The accuracy of NPs either as object or subject in the specific context was higher than that in the non-specific context for both groups. There was not much difference in accuracy within the two specific contexts. The object position was likely to incur omission errors and the subject position attracted the overuse of the definite article. As can be seen in Table 111, for the university group, in specific objects the proportion of the zero article (i.e. 10.1% for ‘zero + singular noun’ plus 3.1% for ‘zero + plural noun’) was larger than the proportion of the definite article (i.e. 7.2%), while in specific subjects the proportion of the definite article (i.e. 19.7%) was larger than the proportion of the zero article (i.e. 4.3% for ‘zero + singular noun’ and 0.0% for ‘zero + plural noun’). The pattern is the same with the middle school group, as can be seen in Table 112.

To summarize, the accuracy of the indefinite article is a function of how learners choose among the articles in different semantic and syntactic contexts. Different combinations of semantic meaning and syntactic positions give rise to different types of errors. Non-specific contexts in general are more difficult than specific contexts. The object position is more difficult than the subject position, but such a difference is more obvious in the university group and not significant in the middle school group. The non-specific meaning combined with the object position proves to be the most problematic context for both groups of learners.

**7.6.3 Genericity**

The GJT showed that the accuracy of the indefinite article in the generic context was significantly lower than that in the non-generic context (including specific and non-specific contexts). This substantial difference persisted when the comparison only involved items in
the subject position, as the generic context only had items in the subject position. It indicates that the difficulty does not lie with the subject position, but the generic meaning itself. Table 113 summarizes the learners’ accuracy in the generic and non-generic contexts. Both groups of learners had a much lower accuracy in the generic context than in the non-generic context. Note that the accuracy score in the generic context was based on judgement only. The results showed that learners had a very low acceptability of the indefinite article in the generic context. It can be largely attributed to the negative influence from L1. As discussed earlier, learners have a good reason to associate the indefinite article in English with \( yi + \) classifier in Chinese, as \( yi + \) classifier has shown characteristics of all the stages through which numeral ‘one’ developed into a grammatcialized indefinite article: as a quantifier, as a specific and non-specific indefinite marker, and as a generic marker (Givón, 1981, 1984; Heine, 1997). However, in Chinese the use of \( yi + \) classifier to denote a generic NP can only occur in the predicate but not in the subject position. This is due to a restriction on the position of indefinite expressions in Chinese. Indefinite expressions including \( yi + \) classifier can rarely occur as subject with stative predicate (for example, verb \( be \)), but it is commonly seen as subject with dynamic predicate (for example, action verbs) (Chen, 2004). A generic context defined in the current research is a characterizing sentence with a kind-referring NP as subject. As characterizing sentences are typically stative (Krifka et al., 1995, p. 12), \( yi + \) classifier (i.e. a close approximation of the indefinite article) cannot occur as subject in the generic context. This association of the English indefinite article with \( yi + \) classifier prevents learners from accepting the use of \( a \) as subject in the generic context.

<table>
<thead>
<tr>
<th>Groups</th>
<th>Semantic context</th>
<th>Accuracy</th>
<th>N of items</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>University</td>
<td>Generic</td>
<td>.224</td>
<td>4</td>
<td>104</td>
</tr>
<tr>
<td></td>
<td>Non-generic</td>
<td>.843</td>
<td>20</td>
<td>104</td>
</tr>
<tr>
<td>Middle school</td>
<td>Generic</td>
<td>.582</td>
<td>4</td>
<td>116</td>
</tr>
<tr>
<td></td>
<td>Non-generic</td>
<td>.802</td>
<td>20</td>
<td>116</td>
</tr>
</tbody>
</table>

Though both groups of students performed considerably better in the non-generic context than in the generic context, there was a large difference in the generic context between the two groups. The middle school students had a slightly lower accuracy (80.2%) than university students (84.3%) in the non-generic context, but had a much higher accuracy (58.2%) than the university students (22.4%) in the generic context. The university students not only had a lower accuracy in judging generic \( a \), but also had far more omission errors...
than middle school students (i.e. a higher acceptability of the form ‘zero + singular noun’ and therefore a lower accuracy: 34.9% vs. 73.3%), as shown in Table 114. The university students tended to omit articles before singular nouns in the generic context, which is not only shown in their high acceptability of the zero form, but also shown in their large proportions of corrections into singular bare nouns. The middle school students did not commit as many omission errors in the generic context. This is shown in both the lower acceptability of the zero article and the lower proportion of corrections into singular bare nouns. This suggests a stronger L1 interference on the part of university students. The generic use of a is something they may find incongruent if they associate the indefinite article with numeral ‘one’ in Chinese. It has to be explicitly taught and understood before they can accept such a usage. The typological difference between L1 Chinese and L2 English should be explained to the learners so that they can understand the potential mistakes due to L1 transfer and avoid making these mistakes. The middle school students were at the early stage of learning English grammar and they may be more alert to the grammaticality of forms due to intensive language instruction. They had more hours of formal classroom instruction than the university students. The middle school students had 4 hours of English classes per week, while the university students had about 2 hours of English instruction per week, according to the background questionnaire. Also, the English classes for the university students have moved away from a focus on grammar to general language skills. The grammar of articles is not likely to be emphasized in the university classroom and their mistakes are not likely to be corrected. Thus the university students’ knowledge of articles may have stabilized. Zhou’s (2008) study also showed that high-proficiency students were similar to low-proficiency students in the accuracy of generic a. In his study, third-year English major students were not better than first-year high school students and first-year non-English major students in the accuracy of generic a. Zhou suggested it was due to the low frequency of generic a. It points to the necessity of explicit instruction of forms that rarely occur in daily usage. For the non-generic usage, their high frequency gives learners more opportunities to be aware of and acquire the correct form. It is not surprising that the university students had a higher accuracy in the non-generic use of the indefinite article than the middle school students.
Table 114 Learners’ judgement accuracy in the generic context

<table>
<thead>
<tr>
<th>Groups</th>
<th>Generic contexts</th>
<th>Accuracy</th>
<th>N of items</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>University</td>
<td>a (correct)</td>
<td>.224</td>
<td>4</td>
<td>104</td>
</tr>
<tr>
<td></td>
<td>the (correct)</td>
<td>.550</td>
<td>4</td>
<td>104</td>
</tr>
<tr>
<td></td>
<td>zero (incorrect)</td>
<td>.349</td>
<td>4</td>
<td>104</td>
</tr>
<tr>
<td>Middle school</td>
<td>a (correct)</td>
<td>.582</td>
<td>4</td>
<td>116</td>
</tr>
<tr>
<td></td>
<td>the (correct)</td>
<td>.422</td>
<td>4</td>
<td>116</td>
</tr>
<tr>
<td></td>
<td>zero (incorrect)</td>
<td>.733</td>
<td>4</td>
<td>116</td>
</tr>
</tbody>
</table>

The study also compared learners’ judgement of using the definite article and using the indefinite article in the generic context. Table 114 is an overview of the judgment accuracy presented separately in the results chapters. The university students and the middle school students seemed to have different assumptions about which forms can be used in the generic context. The university students had a higher acceptance of generic the than generic a (55.0% vs. 22.4%), while the middle school students had a higher acceptance of generic a than generic the (58.2% vs. 42.4%). This is also evident in the corrections they supplied for the ungrammatical zero form. The university students made 70.7% of corrections into the, 17.7% of corrections into a, and 10.2% of corrections into bare plural nouns. The middle school students made 18.7% of corrections into the, and 35.6% of corrections into a, and 43.1% of corrections into bare plural nouns. This shows that the university students are more familiar with the generic use of the than the generic use of a, while the middle school students are less familiar with generic the, and tend to associate indefinite forms (including a and bare plurals) with the generic meaning. There is a minor caveat though. We still cannot be sure whether the learners indeed understood the generic meaning of a or the. The fact that they used a or the in the generic context cannot rule out the possibility that they interpreted the context in a different way. For example, Zhou (2008) interviewed his participants about their judgments in a GJT and found that some students made the right judgment based on a wrong interpretation. There were students who correctly judged the generic the, but actually understood the sentence in a non-generic sense. Similarly, we cannot determine whether the middle school students who judged generic a correctly interpreted the item as a kind-referring item or as an object-referring item. This is the limitation of the GJT in research on articles due to the one-to-many mappings between the form and meaning of the articles.

It should be noted that among the three forms that can express a generic meaning with a countable noun (i.e. a, the, and bare plural nouns), bare plural nouns are more commonly
seen than a singular noun preceded by the indefinite or definite article. Also, the bare plural form is closer than the use of *a* or *the* to the generic expression in the learners’ first language. To be exact, the bare singular form is the closest to the grammar in Chinese. In Chinese, a bare noun can either refer to a generic category or to a non-generic individual, depending on the context. When the learners are aware that a bare singular form is unacceptable for a count noun in English, they can have two strategies to make it grammatical, either by using the definite or indefinite article or by pluralizing the noun by adding *–s*. They may be more likely to accept the use of bare plural form than the use of *a* or *the* before a singular noun, because the notion of plurality is easier to be associated with the meaning of generics, which is about generalization over a series of objects or events. Also, the subject position has no restriction on the use of bare nouns, unlike the above-mentioned restriction on the use of *yi* + classifier. Therefore, it is relatively easy for Chinese learners to acquire the bare plural form. The reason why the university students used fewer bare plural nouns than the middle school students is probably their awareness of the subject verb agreement rule. In items where there was a singular verb, the university students were more sensitive to the number constraint on the subject than the middle school students, the latter of which used bare plural nouns regardless of a singular verb.

### 7.7 The effect of specificity

This section will address research question 5 and discuss the effect of different kinds of specificity on the (mis)use of the indefinite article. The broad notion of ‘specificity’ covers ‘semantic specificity’ and ‘pragmatic specificity’. ‘Pragmatic specificity’ in the current study is characterized by either an explicitly stated knowledge of the referent in the subsequent discourse (i.e. *[+ESK]*) or an explicit denial of the familiarity of the referent (i.e. *[-ESK]*)).

#### 7.7.1 Semantic specificity revisited

Semantic specificity, or so-called (logical) referentiality by Givón (1984), is a purely semantic property. The current research defines it as follows: a referent is specific if the speaker is assumed to be able to construct a unique mental representation of the referent. We can often infer from the tense and aspect of the sentence and the modifiers on the noun phrase to determine whether a referent is semantically specific or not. It was pointed out earlier that a significant positive effect of semantic specificity on the accuracy of the indefinite article was found in the GJT. The article choice test, however, did not find a significant difference in
accuracy between a semantically specific context and a non-specific context in both groups of students. The difference in findings can be attributed to a task effect. First of all, the two tasks demand a different level of competence on the part of learners. The GJT requires the learners not only to judge the forms, but also to provide a correction, while the article choice test only asks for a choice among the three forms of articles. It is obvious that the GJT is more difficult than the article choice test. It is confirmed by both the accuracy scores and the rating of difficulty by the participants. The accuracy of the university students in the article choice test is 86.0%, compared to 73.6% in the GJT, and the accuracy of the middle school students in the article choice test is 81.5%, compared to 68.2% in the GJT. The average difficulty rating of the university students is 2.87 for the GJT, and 2.71 for the article choice test; the average rating of the middle school students is 3.17 for the GJT, and 3.03 for the article choice test. The rating is based on a five-point Likert scale from ‘very easy’ to ‘very difficult’ and 3 is the mid-point. There is about a 0.15 unit increase in difficulty for the GJT compared to the article choice test in both groups of students. As the article choice test is relatively easy, the potential effect of a variable may be less clear. It also warrants attention that the GJT taps learners’ productive knowledge of the indefinite article while the article choice test taps receptive knowledge. It is not surprising that the difference in the types of knowledge elicited by the tests can lead to a difference in results.

More importantly, the level of context detailedness also differs between the GJT and the article choice test. The article choice test provided a well-described context (i.e. a conversation happening in a clearly defined scenario), while the GJT only provides a minimal context (i.e. one or two sentences long). In the article choice test, the learners, therefore, have more contextual clues to help them decide on the article. For example, they may draw clues from the continuation of the topic (i.e. pragmatic specificity) or from what type of information follows the introduction of the referent (i.e. explicitly confirmed knowledge of the referent or explicitly denied knowledge of the referent). Semantic specificity itself becomes less important in their choice of article when they can interpret the context through other means. In the GJT, the learners have to rely on what there is in a sentence-scope context, and therefore, the role of semantic specificity is more significant. Besides, the impoverished context of the GJT is more likely to cause learners to fall back on their L1 for an aid in comprehension, hence a stronger influence of the L1.

The difference in findings between the two tasks also underlines the importance of discourse cohesiveness in helping the learners use the articles correctly. Tarone (1985) also commented
on the effect of tasks on the variation of article usage in learners’ interlanguage. She compared 20 EFL learners’ accuracy of articles in three tasks: a GJT, an oral interview, and a narration task. Her original hypothesis was that the GJT would have the highest accuracy as it required the most attention to form, and the narration task would be the least accurate. Contrary to her hypothesis, the GJT had the lowest accuracy and the narration task had the highest accuracy. She reasoned that learners supplied articles least often in the GJT, because the cohesiveness in discourse does not matter, while the narration task imposes greater communicative pressure to convey the information clearly and accordingly to use the articles correctly. In the preceding paragraph I have given a different explanation for the difference between tasks, but the shared opinion is that discourse cohesiveness does affect article usage. Cohesive discourse can help learners better interpret the referential intention of the speaker and better position the referent in the discourse by using the articles.

7.7.2 Pragmatic specificity

Pragmatic specificity concerns the speaker’s intention to refer. A referential intention is manifested in the continuation of the topic. The discourse immediately following the referent can provide us with a clue as to whether the speaker intends to talk about it. The article choice test showed that pragmatic specificity significantly affected the accuracy of the indefinite article for the university group. Learners used the indefinite article more accurately in a pragmatically specific context than in a pragmatically non-specific context ($p = .032$, $r = .203$, a small effect size). With 95% confidence, it is estimated that learners’ accuracy in a pragmatically specific context, on average, is somewhere between 0.2% and 4.2% higher than the accuracy in a pragmatically non-specific context, the mean difference being 2.2%. The effect of pragmatic specificity, however, was not significant for the middle school group. This suggests that the effect of pragmatic specificity is different for learners of different levels. Learners of a higher proficiency may be more sensitive to this discourse-pragmatic phenomenon than learners of a lower proficiency. After a referent is introduced into the discourse, the speaker’s continuing to add information about the referent makes the referent more salient in the discourse, as well as becoming communicatively important (i.e. a topic). A pragmatically non-specific referent is something that is just mentioned in passing as part of the background information for some other topic. The university students may be more capable of perceiving the referential intention of the discourse, or in other words, better at grasping the topic of the discourse. Therefore, they are more likely to be influenced by
pragmatic specificity. The more salient a referent is in the discourse, the more likely it is for them to use the indefinite article. The university-level learners may have understood the indefinite article as a presentative marker by which a referent is entered into the discourse as a topic. It is likely that the pragmatic specificity or topic continuity of the discourse highlights the communicative need to present or introduce a new referent into the discourse, hence a higher accuracy in using the indefinite article.

The corpus study, which also involved university-level learners, showed that the accuracy in the pragmatically specific context (98.0%) was significantly higher than that in the pragmatically non-specific context (91.2%) ($z = 2.29, p = .02, r = .12$). The finding from the corpus study confirmed the effect of pragmatic specificity discovered in the article choice test. Meanwhile, we should be aware that despite the significance of the effect, pragmatic specificity has a small effect size in both the article choice test and in the corpus study, which means topic continuity has only a subtle influence on learners’ use of the indefinite article.

In addition to knowing that pragmatic specificity has a significant effect on the correct suppliance of $a$, it may also be useful to look at how pragmatic specificity affects the errors, as a higher accuracy is achieved through having a lower error rate. Table 115 presents the university students’ selection of articles in the pragmatically specific and pragmatically non-specific contexts in the article choice test.

<table>
<thead>
<tr>
<th>Articles chosen</th>
<th>Pragmatically specific</th>
<th>Pragmatically non-specific</th>
</tr>
</thead>
<tbody>
<tr>
<td>$a$</td>
<td>1534 (87.2%)</td>
<td>1494 (84.9%)</td>
</tr>
<tr>
<td>$the$</td>
<td>134 (7.6%)</td>
<td>172 (9.8%)</td>
</tr>
<tr>
<td>zero</td>
<td>92 (5.2%)</td>
<td>93 (5.3%)</td>
</tr>
<tr>
<td>Total</td>
<td>1760 (100%)</td>
<td>1759 (100%)$^4$</td>
</tr>
</tbody>
</table>

The Wilcoxon signed-rank test showed that the proportion of $the$ in the pragmatically non-specific context (mean = 9.8%, median = 6.3%) was significantly higher than that in the pragmatically specific context (mean = 7.6%, median = 6.3%), $T = 2.594, p = .009, r = .175$, while the proportion of the zero article in the two contexts was roughly the same. To further explore the reason why learners tended to overuse $the$ in the pragmatically non-specific context, learners’ choice of articles is categorized in terms of the four contexts defined by semantic specificity and pragmatic specificity (Table 116).
Table 116 University students’ choice of articles in semantic-pragmatic contexts in the article choice test

<table>
<thead>
<tr>
<th>Articles</th>
<th>[-s, -p]</th>
<th>[-s, +p]</th>
<th>[+s, -p]</th>
<th>[+s, +p]</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>a</em></td>
<td>745 (84.8%)</td>
<td>764 (86.8%)</td>
<td>749 (85.1%)</td>
<td>770 (87.5%)</td>
</tr>
<tr>
<td><em>the</em></td>
<td>106 (12.1%)</td>
<td>77 (8.8%)</td>
<td>66 (7.5%)</td>
<td>57 (6.5%)</td>
</tr>
<tr>
<td><em>zero</em></td>
<td>28 (3.2%)</td>
<td>39 (4.4%)</td>
<td>65 (7.4%)</td>
<td>53 (6.0%)</td>
</tr>
<tr>
<td>Total</td>
<td>880 (100%)</td>
<td>880 (100%)</td>
<td>879 (100%)</td>
<td>880 (100%)</td>
</tr>
</tbody>
</table>

+s: semantically specific; -s: semantically non-specific
+p: pragmatically specific; -p: pragmatically non-specific

Learners used the definite article most often in the semantically non-specific and pragmatically non-specific context (i.e. 12.1% in [-s, -p]), and least often in the semantically specific and pragmatically specific context (i.e. 6.5% in [+s, +p]). Learners’ use of *the* seemed to increase with the degree of non-specificity of the context. The notion of specificity can be understood as a continuum or scale. The context that is both semantically specific and pragmatically specific (i.e. [+s, +p]) is the most specific context, as the speaker not only refers to a unique object but also continues to talk about it, making it the topic of the conversation (for example, item 42 below). The context that is neither semantically nor pragmatically specific (i.e. [-s, -p]) is the least specific context, as the speaker does not refer to any particular object but to any that fits the category, and also the speaker just briefly mentions the object with no intention to elaborate on the object itself (see item 29 for example).

Item 42 [+s, +p]
Between friends
Mary: What did you do last Sunday?
Paul: I cleaned my apartment in the morning. After lunch I read _______ book. It was so interesting that I kept on reading for the whole afternoon and whole night. I think you will love it. It’s called Wolf Hall. It has won a lot of prizes.

Item 29 [-s, -p]
Between friends
Taylor: My mum is going to throw a party this weekend.
Lisa: Do you need my help?
Taylor: Thanks. We just need _______ tent. We are also running out of chairs. Can you bring some chairs?
Lisa: No problem.

The degree of specificity also differs between a context that is semantically non-specific but pragmatically specific (i.e. [-s, +p]) and a context that is semantically specific but pragmatically non-specific (i.e. [+s, -p]). To give two examples from the article choice test:

Item 45 [+s, -p]
Between colleagues in the office
Kate: You are late today.
Ian: Yes, I overslept. I just brushed my teeth and washed my face. I had no time for breakfast, so I took ______ apple to work. I just managed to catch the right bus.
Kate: Lucky you. The manager hasn’t arrived yet.

Item 17 [-s, +p]
In a gift shop
Clerk: What can I do for you?
Customer: I am looking for ______ doll. It can be blue or yellow, the color my daughter likes. Also, it should not be too large for a five-year old girl.

In a [+s, -p] context, the speaker refers to a unique object (e.g. something that is positioned in the past is obviously unique), but does not continue to talk about the referent, as the referent itself is communicatively unimportant. In a [-s, +p] context, the speaker refers to any token of a type. The follow-up information helps narrow down the token, but still cannot identify a particular token. While these two contexts are specific in different ways, if we view specificity in terms of uniqueness, then [+s, -p] is more specific than [-s, +p], as the former referent is unique in terms of its ontological status. Therefore, the degree of specificity of the four contexts can be ranked in the following way:

[-s, -p] < [-s, +p] < [+s, -p] < [+s, +p]

Interestingly, the university-level learners’ use of the increased as the context became less specific, as shown in Figure 10 below. Incidentally, the middle school students overused the to a similar extent across different semantic-pragmatic contexts, as shown in Figure 11.
For reasons explained above, pragmatic specificity did not significantly affect middle school students’ use of articles (i.e. including both the correct suppliance of a and substitution or omission errors). Now let us focus on the university students and explore why they used more the in the non-specific context? This question has already been touched upon in the discussion of semantic specificity. In the GJT, it was also found that there was more overuse of the definite article in the semantically non-specific context than in the semantically specific context. As explained earlier, it is likely that learners used the form ‘the + singular noun’ to express a generic meaning in the non-specific context. In the non-specific context, the speaker refers to any object or individual that meets the description of the NP. The non-specific context is close in meaning to a generic context, whereas in a generic context, the referent not only has to be non-specific but also has to occur as subject in a characterizing sentence. Definite the as the subject of a characterizing sentence can express a generic meaning, but it cannot always be kind-referring when it is object in a particular sentence (i.e. in a non-characterizing sentence). Let us examine some examples that attracted the most overuses of the. The three items that had the highest rate of overuse of the for the two groups are exactly the same. They are all non-specific, either semantically or pragmatically.

Item 46 [-s, -p]
Between students
Kitty: Do you happen to know how to plant tomatoes? My research paper has something to do with that.
Susan: You should ask ______ farmer. Or you can also search online, which is quicker. Nowadays, the internet can answer almost every question.

Item 27 [-s, -p]
Between friends
Tan: You seem a bit stressed recently.
Rose: Yes. I am preparing all sorts of things before I move into the new house. I am looking for ______ cleaner to wash the carpet before I move in. I am trying to buy some new furniture. On top of these, packing things is most tiring. I have a lot of stuff!

Item 32 [-s, -p]
Between friends
Leo: I want to learn how to swim. Do you have any suggestions?
Celia: You should first get things ready. Then you should find ______ swimming teacher. You’d better go swimming together with your friends. It is safer.

For item 46 above, 44% of the university students and 40% of the middle school students chose the definite article in place of the indefinite article. It is unlikely that the learners associated the farmer with a definite person that is identifiable to both the speaker and the hearer in the context, as the context is unambiguously indefinite. The most likely explanation for the learners’ overuse of the in this context is that they intended the farmer to be kind-referring (i.e. referring to anyone in the category of farmers). Similarly for items 27 and 32, a non-specific referent does not refer to an individual token but to a type membership. The learners may have interpreted the context correctly but misused the definite article for this meaning. It indicates that learners are not clear that the generic use of the is limited to the subject position. The use of the in the above items can only refer to a non-generic individual.

I noted earlier that a semantically non-specific context attracts the overuse of the. The dimension of pragmatic specificity can help to make the context more specific. Pragmatic specificity functions in tandem with semantic specificity. If a semantically non-specific referent is pragmatically non-specific, that is, it is just mentioned briefly and not further specified by follow-up information, the learners are more likely to interpret it as kind-
referring. If a semantically non-specific referent is pragmatically specific, that is, the speaker continues to talk about it in the subsequent discourse, the referent becomes more specific and more likely to be interpreted as an individual rather than a type. This explains why a pragmatically non-specific context increased the overuse of *the*, while a pragmatically specific context increased the correct suppliance of *a*.

7.7.3 Explicitly stated knowledge (ESK)

The article choice test operationalized a pragmatically specific context in two ways: 1. The speaker continues to explicitly confirm knowledge of the referent (i.e. [+]ESK); 2. The speaker continues to explicitly deny familiarity with the referent (i.e. [-ESK]). As both [+]ESK and [-ESK] are realizations of topic continuity, they are sub-categories of pragmatically specific contexts.

The article choice test did not find a significant effect of ESK on the accuracy of the indefinite article for the university group, although the accuracy in a [+]ESK context was higher than that in a [-ESK] context (*p* = .088). There was a significant interaction between semantic specificity and ESK. In a semantically specific context, the accuracy of [+]ESK items was higher than that of [-ESK] items (*p* = .011) (a significant difference of 6.0%); in a semantically non-specific context, the accuracy in [+]ESK items was slightly lower than that in [-ESK] items (a non-significant difference of 0.4%). For the middle school group, the results showed that if we ignore the factor of semantic specificity, there was a marginally significant main effect of ESK on the accuracy of the indefinite article (*p* = .053, *r* = .184, a small effect size). With 95% confidence, it is estimated that the middle school learners’ accuracy in the [+]ESK context, on average, is somewhere between 0.1% lower and 6.9% higher than the accuracy in the [-ESK] context, the mean difference being 3.4%.

To summarize the findings, the accuracy of the indefinite article was higher in the [+]ESK context than in the [-ESK] context for both groups, but this effect was only marginally significant for the middle school group. When the context was also at the same time semantically specific, the effect of ESK became significant for the university group. The effect of ESK is more obvious for the middle school students than the university students, which once again suggests that learners of different levels may have different strategies when they choose which article to use. The university-level learners are more sensitive to pragmatic specificity (i.e. the continuity of the topic in the discourse), as discussed earlier, while the
middle school students rely more on the objective identifying attributes of the referent that are expressed in the speaker’s statement about the referent.

We have learned that ESK has a positive effect on middle school students’ accuracy of the indefinite article. A related question is: what effect does ESK have on errors? Table 117 displays the middle school students’ choice articles in the [+ESK] and [-ESK] contexts.

Table 117 Middle school students’ choice of articles in [+ESK] and [-ESK] contexts in the article choice test

<table>
<thead>
<tr>
<th>Articles chosen</th>
<th>[+ESK]</th>
<th>[-ESK]</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>a</em></td>
<td>731 (83.2%)</td>
<td>701 (79.8%)</td>
</tr>
<tr>
<td><em>the</em></td>
<td>123 (14.0%)</td>
<td>126 (14.4%)</td>
</tr>
<tr>
<td><em>zero</em></td>
<td>25 (2.8%)</td>
<td>51 (5.8%)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>879 (100%)</td>
<td>878 (100%)</td>
</tr>
</tbody>
</table>

The Wilcoxon signed-rank test showed that the proportion of the zero article in the [-ESK] context (mean = 5.8%, median = 0) was significantly higher than that in the [+ESK] context (mean = 2.8%, median = 0), $T = 2.704$, $p = .007$, $r = .182$, while the proportion of the definite article in the two contexts was about the same. This indicates that the [-ESK] follow-up information decreases the specificity of the context and leads to more omission errors. It is also worth noting that the effect of [-ESK] was different for a semantically specific context and a semantically non-specific context, as shown in Table 118.

Table 118 Middle school students’ choice of articles in semantic-pragmatic contexts in the article choice test

<table>
<thead>
<tr>
<th>Articles</th>
<th>[+s, +e]</th>
<th>[+s, -e]</th>
<th>[-s, +e]</th>
<th>[-s, -e]</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>a</em></td>
<td>361 (82.2%)</td>
<td>340 (77.6%)</td>
<td>370 (84.1%)</td>
<td>361 (82.0%)</td>
</tr>
<tr>
<td><em>the</em></td>
<td>64 (14.6%)</td>
<td>62 (14.2%)</td>
<td>59 (13.4%)</td>
<td>64 (14.5%)</td>
</tr>
<tr>
<td><em>zero</em></td>
<td>14 (3.2%)</td>
<td>36 (8.2%)</td>
<td>11 (2.5%)</td>
<td>15 (3.4%)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>439 (100%)</td>
<td>438 (100%)</td>
<td>440 (100%)</td>
<td>440 (100%)</td>
</tr>
</tbody>
</table>

+s: semantically specific; -s: semantically non-specific
+e: explicit confirmed knowledge of the referent; -e: explicit denial of familiarity of the referent

A [-ESK] follow-up on a semantically specific referent incurred more omissions (8.2%) than a [-ESK] follow-up on a semantically non-specific referent (3.4%). Figure 12 portrays the proportions of zero article the middle school students used across semantic-pragmatic contexts. The university students showed the same trend in the overuse of the zero article (in
Figure 13. For both groups, the omission errors occurred most often in the semantically non-specific context with the speaker’s explicit denial of the familiarity of the referent. It is interesting that it is not the least specific context (i.e. [-s, -e]) that attracts the most omission errors, but the [+s, -e] context.

![Figure 12 Overuse of zero article across semantic-pragmatic contexts (middle school)](image1)

![Figure 13 Overuse of zero article across semantic-pragmatic contexts (university)](image2)

Here are two examples for us to compare the [+s, -e] and [-s, -e] contexts.

**Item 22 [+s, -e]**

At a university

Professor Clark: I’m looking for Professor Anne Peterson.

Secretary: I’m afraid she is busy. She is meeting with _______ student, but I’m not sure who. I guess it’s one of her postgraduate students.

**Item 41 [-s, -e]**

Between friends

Sue: Congratulations on winning the lottery! What are you going to do with the money?

Sandy: I want to buy _______ house. I don’t know what it will look like or how large it will be. I need to do some research on the housing market.
For a semantically non-specific context (e.g. Item 41), as the speaker does not refer to any unique object, the speaker’s denial of any familiarity of the referent in the subsequent discourse follows naturally. The [-ESK] information does not seem to add or take away anything from the original semantically non-specific context. For a semantically specific context (e.g. Item 22), the speaker introduces a unique referent (i.e. the present continuous tense captures a particular individual that the professor is meeting with at the moment), but the speaker continues the topic by expressing ignorance of this particular individual. The [-ESK] follow-up seems to suggest that the identity of the referent is not important, and what is important is the fact that the professor is occupied. The [-ESK] seems to have diminished the communicative importance of the referent, and therefore reduces the necessity of presenting this referent in the first place using the presentative marker *a*. In contrast, the [-ESK] information does not seem to lessen the communicative importance of a semantically non-specific referent, as the identity or other objective attribute of the referent is not known in the first place. Learners’ omission of the indefinite article may be related to their perception of the communicative importance of the referent. However, further research is needed to investigate whether learners’ use of the indefinite article is biased by their perception of the communicative importance of the referent in the discourse.

### 7.7.4 Summary of the effect of specificity

The current research found that semantic specificity was related to the learners’ accuracy of the indefinite article. Contrary to a number of previous studies that found learners associated *a* with non-specific indefinites, the current research found that learners used *a* more accurately in a specific context than in a non-specific context. Learners overused *the* or omitted *a* more often in a non-specific context than in a specific context. The overuse of *the* in the non-specific context may be attributed to learners’ misuse of *the* for generic meaning. The overuse of the zero article in the non-specific context may be related to L1 interference. It is likely that learners associate the indefinite article with *yi* + classifier in Chinese, an arguably grammaticalized indefinite article in Chinese. *Yi* + classifier is more often omitted in a non-specific context than in a specific context in Chinese, which corresponds to the learners’ omission patterns with the English indefinite article. For reasons discussed earlier, the article choice test did not find semantic specificity to be a significant factor.
In addition to semantic specificity, pragmatic specificity also has a significant effect on the accuracy of the indefinite article. The dimension of pragmatic specificity increases the overall specificity of the referent through discourse salience, but this effect is only significant for the university students, not for the middle school students, indicating that the university students are more sensitive to this discourse-level phenomenon than the middle school students.

Explicitly stated knowledge of the referent (i.e. ESK) also has a significant effect on the accuracy of the indefinite article. Learners used \textit{a} more often in a [+ESK] context than in a [-ESK] context. This effect is marginally significant for the middle school students, but not significant for the university students.

The different effects of pragmatic specificity and ESK suggest that learners of different proficiencies have different strategies when they decide which articles to use. Their choice of articles may be influenced by the communicative importance of the referent. There is, however, a slight difference here in terms of how the learners perceive the communicative importance of the referent. The middle school students tend to judge the communicative importance of a referent by objective information (i.e. confirmed knowledge of the referent), rather than by the continuity of the topic itself, as for them the effect of ESK on the accuracy of the indefinite article is significant, but the effect of pragmatic specificity is not significant. The university students are more sensitive to the continuity of the discourse as a signal of a topic regardless of whether the information relates to knowledge or ignorance of the referent, as for them the effect of pragmatic specificity is significant, but the effect of ESK is weak.

\textit{7.7.5 Comparison with other studies}

It is important to note that the findings regarding the effect of specificity in the current research contradict a number of previous studies (inter alia, Ionin, 2003; Kim & Lakshmanan, 2009; Xu, Shi, & Snape, 2016; M. Yang, 2012; Zhou, 2008). These studies did not have an exclusive focus on the indefinite article as the current research did, but they observed the following trend in learners’ errors: Learners tend to overuse \textit{the} in the specific indefinite context and overuse \textit{a} in the non-specific definite context. This apparent contradiction in findings can be explained.

Before I compare the findings, it is necessary to point out that the definition of specificity varies across different studies, as already noted in the literature chapter. The differences in definition make it hard to compare the findings directly. Since the article choice test in the
current research is modelled on Ionin et al. (2004) and the ESK concept is drawn from Trenkic (2008), I will mainly compare the results of the article choice test in the current research with the results from these two studies and offer tentative explanations for the differences in the results.

Ionin et al. (2004) used a forced-choice elicitation task (upon which the current article choice test is modelled) and tested 30 L1 Russian ESL learners and 40 L1 Korean ESL learners of mixed proficiencies in America. Their study showed that both groups of learners overused the more with specific indefinites than with non-specific indefinites and overused a more with non-specific than with specific definites. The definition of specificity in Ionin et al. (2004) actually corresponds to [+s, +p, +e] in the current study, that is, the speaker intends to refer to a unique individual (i.e. [+s]) and considers this individual to possess some noteworthy property manifested in explicitly confirmed knowledge of the referent in the subsequent discourse (i.e. [+e] and necessarily [+p]). Their [-specific] context can belong to any of the [+s, +p, -e], [+s, -p], and [-s, -p] contexts defined in the current study. Their study showed that learners were less accurate in using a in the specific indefinite context (i.e. [+s, +p, +e] context) than in the non-specific indefinite context, and that learners tended to overuse the in the specific indefinite context. In contrast, the current research showed that Chinese learners were mostly more accurate in the [+s, +p, +e] context than in other contexts, and the [+s, +p, +e] context did not lead to a higher proportion of the definite article. The error patterns discovered in the current study are not predicted by the Fluctuation Hypothesis (Ionin, 2003; Ionin et al., 2004) and therefore cannot support this hypothesis. The Chinese learners in the current study did not fluctuate between a specificity setting and a definite setting but rather showed a reverse specificity distinction as predicted by the Fluctuation Hypothesis, that is, a higher accuracy of a with specific than non-specific indefinites and a lower overuse of the with specific than non-specific indefinites.

Trenkic (2008) used a forced-choice elicitation task taken from Ionin et al. (2004) and tested 43 L1 Mandarin learners. She found that Chinese learners’ overuse of the definite article was not associated with the specific context, but associated with the [+ESK] context. Despite the fact that she attributed the overuse of the to a different factor, that is, ESK (i.e. explicitly stated knowledge) instead of specificity, she also found that learners tended to overuse the in the [+specific, +ESK] context (corresponding to the [+s, +p, +e] context in the current study). The current study found that learners were affected by ESK, not in the direction shown by Trenkic (2008), but in the opposite direction. The middle school students were more accurate
in using a in the [+ESK] context than in the [-ESK] context and less likely to overuse the in the [+ESK] context than in the [-ESK] context. As the [+ESK] context adds to the specificity of the referent, compared to the [-ESK] context, the common pattern discovered in Ionin et al. (2004) and Trenkic (2008) is that a specific indefinite context leads to more overuse of the and reduces the accuracy of a, contradicting the results of the current study.

There can be a combination of various underlying factors that lead to the different findings, such as differences in the learners’ L1 backgrounds, in the instruments, in the learners’ level of proficiency, in the learners’ own idiosyncratic hypotheses about article usage, in instruction unknown to the researcher, in the learners’ implicit learning of the indefinite article, and in the strategies used to answer the questions and so on. There is no knowing for sure whether and how any one of these suggested factors is at work. Of these potential factors, different L1s, difference in the instruments, and in the learners’ English background seem to be potentially explanatory factors.

Ionin et al.’s (2004) study involved L1 Korean and L1 Russian learners of English, while the current research targeted L1 Chinese learners of English. Though Chinese is regarded as an article-less language, just like Korean and Russian, it is undergoing a grammaticalization of numeral one (yi) as an indefinite marker, as already discussed in Section 7.7.1. Chinese learners may have associated yi with the indefinite article, which gave rise to a higher accuracy of a in the specific context and more omission of a in the non-specific context, mimicking the use and omission of yi in the specific and the non-specific contexts in Chinese. A number of other studies have also observed this effect in Chinese learners (Chang & Zhao, 2014; Crosthwaite, 2016; Dai & Wei, 2008; Snape et al., 2006; Ting, 2005). Dai and Wei (2008) used a similar elicitation task with Chinese learners of English and their findings are also out of line with the Fluctuation Hypothesis (Ionin, 2003; Ionin et al., 2004). Both the intermediate learners and the advanced learners in their study used a more often in the specific indefinite context than in the non-specific indefinite context, which supports the findings of the current research. Dai and Wei (2008) explained that the demonstratives this (zhe) and that (nei) in Chinese are functioning like the definite article and the numeral one (yi) is functioning like the indefinite article, which facilitates Chinese learners’ acquisition of English articles. Ting (2005) found that Chinese learners were slightly more accurate in using a in the specific context (94%) than in the non-specific context (92%) and that they used the slightly more in the non-specific context (4%) than in the specific context (3%), similar to the patterns in the current research. Snape et al. (2006) observed that the Chinese intermediate
learners in Ting (2005) did not fluctuate as predicted by the Fluctuation Hypothesis, while the Japanese intermediate learners in Reid et al. (2006) did. Snape et al. (2006) attributed the better performance of the Chinese learners to grammaticalization and L1 transfer. Chinese is ahead of Japanese, which is also an article-less language, in the development of definiteness as a grammatical category. Crosthwaite (2016) compared L2 English article use by L1 speakers of three article-less languages (i.e. Chinese, Korean and Thai) and found that Chinese learners were more accurate than Korean and Thai learners in almost all contexts of use, providing further evidence that Chinese learners are benefiting from the grammaticalization of definiteness/specificity markers in L1 Chinese. As the effect of L1 transfer for Chinese learners is confirmed in various studies, it is reasonable to speculate that the different results between the current research and Ionin et al. (2004) may also be related to the participants of different L1s.

The difference in the instruments can also explain the different results. Ionin et al. (2004) and Trenkic (2008) investigated both the indefinite article and the definite article, so there was an equal number of definite contexts and indefinite contexts in their article choice test. The current study only focused on the indefinite article and therefore did not have as many definite contexts as indefinite contexts. There were 36 contexts targeting the indefinite article and 12 contexts as distractors targeting the definite article. It is possible that the greater number of the indefinite contexts resulted in a practice effect on the part of the learners and improved their accuracy in using *a* in the indefinite context. The practice effect may be related to learners’ overall high accuracy of *a*, but it cannot account for the patterns associated with the specific and non-specific contexts, which are both indefinite contexts. Another difference in the instruments is that both of the previous two studies included target noun phrases with prepositional phrase post-modification, e.g. *a friend from college, a student from my English class, a lawyer with lots of experience*, etc. In contrast, none of the target noun phrases in the current study had any post-modifier. If learners associated *the* with certain syntactic structures such as post-modification, target noun phrases with post-modification may give rise to overuse of *the*, and this may be related to the higher proportion of *the* in the specific indefinite context in the previous two studies.

Apart from the difference in L1 and the instruments, there is also an obvious difference in the learners’ English language background. The Chinese participants in Trenkic (2008) were postgraduates studying in a university in the UK, while the Chinese participants in the current research were middle school students and undergraduate students studying in China. The
participants in Trenkic (2008) appeared to have a higher proficiency than the two groups of the participants in the current research, although the former did not seem to have started learning English as early as the latter two groups of participants. Trenkic (2008) reported that at the time of the testing all the participants had studied English for at least 7 years and none had lived in an English speaking country for more than 3 months. In other words, they (with an average age of 24) started learning English at 17 years old on average. In the current research, the middle school students began learning English at 5.7 years old on average and the undergraduates began at 9.5 years old on average. The different onsets of English in these participants also reflect the English learning trend in China, that is, the younger generation start learning English at an earlier age than the previous generations. It is possible that the Chinese participants in the current study who started learning English at a much earlier age than the participants in Trenkic (2008) are better at learning the indefinite article implicitly by generalizing article usage patterns from the input they received.

The above reasons may account for the different findings. In addition to the above studies that had different results from Ionin et al. (2004), the following studies also contradict the findings from Ionin et al. (2004). Tryzna (2009) used an instrument modelled on Ionin et al.’s (2004) forced-choice elicitation task. She reported that intermediate L1 Polish learners overused the to the same extent with both specific and non-specific indefinites rather than overusing the with specific indefinites more than with non-specific indefinites. In the same study, Ionin et al. (2004) discovered an interaction between proficiency and the effect of specificity. For the L1 Russian speakers, advanced L1 learners were more likely to use a with [+specific] indefinites and less likely to use the with [+specific] indefinites. In other words, these learners differed from the patterns predicted by the Fluctuation Hypothesis. Le Bruyn and Dong (2015) analyzed 500 occurrences of the definite article randomly selected from the Portsmouth corpus (Diez-Bedmar & Papp, 2008; Papp, 2009) and found 59 unacceptable cases, but only one of them was a specific indefinite context. This indicates that Chinese learners do not appear to be overusing the definite article with specific indefinites. They argue that Chinese learners are able to distinguish between definiteness and specificity and do not fluctuate between the specificity and the definiteness settings as proposed in Ionin et al. (2004).

Le Bruyn and Dong (to appear) tested 30 Chinese English-major undergraduates on their choice of articles in mini-stories. In their mini-stories, the speaker first introduced a protagonist and then talked about what happened to the protagonist, which makes the
protagonist a specific referent in the discourse. In the same story, a second character was also introduced, but no more information was mentioned about the second character and the story unfolded around the protagonist only, which makes the second character a non-specific referent as it is not noteworthy either as an individual or on the discourse level, following the definition of specificity in Ionin et al. (2004). This study found that Chinese learners were more accurate in using the indefinite article in the specific context than in the non-specific context and they tended to overuse the definite article in the non-specific context rather than in the specific context. Their results are similar to the current study and also go against the Fluctuation Hypothesis. It is worth noting that this study also shows that the indefinite article as a presentative marker (i.e. to introduce a referent into the discourse and continue to talk about this referent in the following discourse) is used more accurately than its use in a less specific context (i.e. to introduce a referent into the discourse but not referring to it again in the following discourse as it is not communicatively important). The more specific context may be a more communicatively important and prototypical context for the use of the indefinite article, and learners may acquire the use of the indefinite article in this context earlier than in the less communicatively important contexts (see Section 7.11 for more discussion on the prototypicality effect).

To summarize, I have discussed the different results across studies and offered explanations for the different findings. Various factors can affect the results of a study on article acquisition. The difference here is mainly attributed to the learners’ L1/L2 background, and the difference in the instruments. Chinese learners’ higher accuracy of a in the specific context than in the non-specific context may be related to both L1 transfer and the specific use of a being more communicatively important.

The previous sections have discussed the findings related to the research questions of this thesis. In the following sections, I will discuss some other issues that are not germane to the research questions, but which nevertheless shed light on the learners’ knowledge of the indefinite article.

### 7.8 Accuracy and proficiency

This section will discuss the learners’ accurate use of the indefinite article with respect to their level of proficiency in the elicitation study. The current study considers the university students to be of a higher proficiency than the middle school students, on the basis of the
length of time they had studied English and on the basis of the formal instruction they had experienced. The university students had spent about 11 years learning English by the time of the test, compared to 8 years for the middle school students. Note that the university students were on average 7 years older than the middle school students, but the latter started learning English at an earlier age, which is the general trend in China. They middle school students on average started learning English at 6 years old and the university students started learning English at about 10 years old.

The fact that the university students were at a more advanced stage of formal education also points to their higher proficiency. The university students were second-year undergraduates and the middle school students were in their second year of secondary education. The middle school students were at the early stage of learning English grammar, while the university students had already finished studying grammar in their middle school and high school. The English classes for the university students did not give a primary focus on grammar unlike the English classes for middle school students. Instead it aimed to help the students develop their general language skills and communicative ability in particular.

The current research did not administer any standard proficiency test to assess the participants’ proficiency for logistic reasons, but they were asked in the language background questionnaire to report any proficiency test they had already sat. The vast majority of the middle school students had not taken any standard proficiency tests. The majority of the university students had sat CET (College English Test Band 4), China’s nationally recognized foreign language test for non-English major undergraduates. Among the 112 participants, 83 (74%) students reported a CET4 score. Their average CET4 score was 483.58, roughly corresponding to the 40% percentile according to the CET4 grading system. The proficiency score indicated that the university students had an about average or slightly below average English ability among the wider population of university students.

The difference in the years of learning English and the stage of formal education clearly shows that the university students were of a higher proficiency than the middle school students. It may be worth noting that despite the discrepancy in general language proficiency, it does not follow that there would be a dramatic difference in the accuracy of article usage between the two groups of students. One reason is that the GJT and the article choice test only tested learners’ knowledge of the indefinite article rather than their general language proficiency. The other reason is that the type of instruction the middle school students were
receiving may have assisted their performance in the article test. At the time of the test, the middle school students had six 40-minute English classes per week (i.e. equivalent to 4 hours per week), while the university students spent an average of 2 hours learning English in class per week. In middle school English classes, grammar was taught and practised. One of the important goals of middle school English class is to prepare the students for the high-stake national senior high school entrance exam in the final year of their secondary education. Grammar points including the use of articles are examined in the senior high school entrance exam, so naturally the teachers will emphasize grammar teaching and are more likely to correct the students’ mistakes in article usage. The university English classes emphasized developing the students’ communicative ability rather than grammar teaching because the university students are supposed to have completed grammar learning prior to university. The university English teachers were, therefore, not likely to have taught article usage or to have bothered correcting students’ mistakes in article usage.

The university students are generally more accurate in the GJT and in the article choice test than the middle school students. For the university students, the accuracy of the GJT and the article choice test is 73.6% and 86.0% respectively, compared to 68.2% and 81.5% for the middle school students. In terms of item-wise accuracy, the university students also had more items of a higher accuracy (i.e. a facility value of above .66) than the middle school students. In addition to having a higher overall accuracy, the university students were also more accurate in each semantic-pragmatic context except the generic context. I pointed out earlier that the higher accuracy of the middle school students in the generic context may be due to the intensive classroom instruction in grammar that they were receiving at their stage of secondary education. The generic use of the indefinite article is counter-intuitive for the Chinese learners due to L1 interference. The conceptual difficulty and the low frequency of generic *a* render it hard for the Chinese learners to overcome L1 transfer and acquire this form, which makes explicit instruction necessary, although this effect from instruction may not last long and the learners may still find this use unfamiliar due to its low frequency in input.

The study shows that in general a higher level of proficiency is associated with a better performance in articles, echoing previous studies (H. Li & Yang, 2010; Trenkic, 2002; Young, 1996; Zhou, 2008). The better performance is not only reflected in higher accuracy, but also reflected in the learners’ being more consistent in article usage, as shown in their answers in the retest (to be discussed immediately below).
7.9 Optionality in article usage

The research found from the retests in the elicitation study that learners were inconsistent in their judgment or choice of the articles. The amount of within-participant inconsistency reflects the general difficulty in the acquisition of the English articles and also indicates a difference in performance between students of different proficiencies.

The elicitation study used a binomial test to compute whether the same participants in the retest manifested a significant change in their answers as a way to evaluate the external reliability of the test. With the outliers excluded, based on the results of the binomial test, the remaining participants were all reasonably consistent in their responses in the tests. Therefore, the amount of consistency shown in the reliable participants can be regarded as a meaningful index of the stability of the learners’ knowledge of articles. Table 119 recapitulates the statistics of the number of changes in the retest (see Chapters 5 and 6 for more details).

Table 119 The number of changes in the retest (outliers removed)

<table>
<thead>
<tr>
<th>Groups</th>
<th>Retest</th>
<th>N</th>
<th>Mean</th>
<th>Median</th>
<th>SD</th>
<th>Min.</th>
<th>Max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>University</td>
<td>GJT</td>
<td>34</td>
<td>6.794</td>
<td>7</td>
<td>3.310</td>
<td>2</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>Choice</td>
<td>35</td>
<td>4.543</td>
<td>5</td>
<td>3.459</td>
<td>0</td>
<td>13</td>
</tr>
<tr>
<td>Middle school</td>
<td>GJT</td>
<td>35</td>
<td>8.171</td>
<td>8</td>
<td>4.409</td>
<td>2</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td>Choice</td>
<td>30</td>
<td>5.500</td>
<td>5</td>
<td>3.655</td>
<td>0</td>
<td>15</td>
</tr>
</tbody>
</table>

For the GJT test, no participant was 100% consistent in the retest in either the university group or the middle school group. For the article choice test, five participants in the university group made no changes in the retest, and one participant in the middle school group made no changes. This shows that the GJT is more difficult than the article choice test, as seen also in the students’ accuracy scores for the two tasks. The university students made a smaller number of changes on average in both the GJT and the article choice test than the middle school students. The university students changed 14.2% of items in the GJT and 14.2% of items in the article choice test. The middle school students changed 17.1% of items in the GJT and 17.2% of items in the article choice test. The fewer changes on the part of the university students are in line with their higher accuracy in comparison to the middle school students. It shows that learners of a higher proficiency are not only more accurate in the use of the indefinite article, but also are more consistent in their judgement or choice of articles. Ionin et al. (2004) reported that intermediate L1 learners showed greater optionality in article usage than advanced L2 learners who used articles more accurately. Learners tend to be more
consistent as they become more proficient. Robertson (2000) also found that learners used articles on some occasions but omitted articles on some other occasions in identical contexts. Robertson (2000) attributed this unsystematic variation in the use of articles to the difficulty in acquiring the correct mapping of the surface structures (i.e. *a*, *the* and the zero article) onto the abstract features of the determiner phrase (i.e. number and definiteness). The optionality phenomenon also shows that accuracy does not necessarily reflect the stability of knowledge. The variability in usage enables us to see that learners do not have a firm grasp of article usage as they are not consistently right.

### 7.10 Certainty measure

The elicitation study asked the students to rate their certainty of each judgement or choice of article on a three-point Likert scale (i.e. not certain, fairly certain and very certain). The certainty score is intended to provide an additional measure of the learners’ competence, as it is assumed that a solid knowledge is associated with a high level of certainty. If so, the certainty score should be related to the accuracy of the indefinite article. In both groups of students there was a significant positive correlation between certainty and accuracy, but the correlation was stronger for the university students (see Table 120).

<table>
<thead>
<tr>
<th>Groups</th>
<th>Tests</th>
<th>Accuracy</th>
<th>Certainty</th>
<th>Correlation</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>University</strong></td>
<td>GJT</td>
<td>.721</td>
<td>2.274</td>
<td>.836</td>
<td>.000</td>
</tr>
<tr>
<td></td>
<td>Choice</td>
<td>.860</td>
<td>2.424</td>
<td>.722</td>
<td>.000</td>
</tr>
<tr>
<td><strong>Middle school</strong></td>
<td>GJT</td>
<td>.660</td>
<td>2.382</td>
<td>.530</td>
<td>.000</td>
</tr>
<tr>
<td></td>
<td>Choice</td>
<td>.811</td>
<td>2.467</td>
<td>.665</td>
<td>.000</td>
</tr>
</tbody>
</table>

The effect size for the correlation between accuracy and certainty was .836 for the GJT and .722 for the article choice test in the university group, compared to .530 for the GJT and .665 for the article choice test in the middle school group (see Table 120). It shows that the certainty score is a better mirror of the university students’ accuracy than that of the middle school students. For the university students, the certainty score across contexts is generally in line with the order of accuracy, while for the middle school students, the certainty score often does not reflect accuracy in that particular context. It is also noteworthy that the middle school students had a slightly higher certainty score on average in each test than the university students did, though the former had a lower accuracy than the latter. This also points to the limitation of the certainty score as a supporting measure of learners’
competence. I will not further discuss the certainty scores, but see Appendix K for a summary of certainty scores across contexts.

7.11 Interlanguage development

To summarize the patterns in learners’ article usage, the Chinese EFL learners sampled in the current research are more accurate in the non-generic use of \( a \) (including specific and non-specific usages), than in the generic use of \( a \). Among the non-generic contexts, they tend to be more accurate in using \( a \) in a specific context than in a non-specific context. The accuracy of \( a \) in different contexts is indicative of the acquisition order of \( a \) in different contexts.

The acquisition of non-generic \( a \) before generic \( a \) is also found in other studies. For example, Lang’s (2010) longitudinal study found no tokens of generic \( a/an \) produced by the informant across 13 datasets, as opposed to 389 tokens of non-generic \( a \). The informant had not acquired the generic use of \( a \) even after 21 months of exposure to English in America. Lang (2010) concluded that the non-generic function of \( a \) was acquired by the informant far earlier than the generic function. Also, Lee, Cameron, Linton, and Hunt (1994) reviewed literature of L1 article acquisition and concluded that the referential function is acquired earlier than the generic function.

It is not completely clear from previous L1 article acquisition studies whether the specific meaning of \( a \) is acquired earlier by children than the non-specific meaning of \( a \), but there is some support for this. Cziko (1986) reviewed 7 article acquisition studies involving young learners, and concluded that findings were generally consistent with a four-stage acquisition hypothesis. I will summarize these four stages relative to whether the context is specific or non-specific, ignoring the dimension of hearer’s knowledge, as only specificity is of interest here. In stage 1, the child uses \( a \) or the for specific referents, and the zero article for non-specific referents. In stage 2, the child replaces the zero article with \( a \) for non-specific referents, and only uses the for specific referents. In stage 3, the child begins to learn that \( a \) is also used for specific referents. In stage 4, the child acquires the correct pattern of article usage. Table 121 below shows these four stages.
Table 121 Acquisition of a according to the four-stage hypothesis

<table>
<thead>
<tr>
<th>Stages</th>
<th>Specific contexts</th>
<th>Non-specific contexts</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>a, the</td>
<td>zero</td>
</tr>
<tr>
<td>2</td>
<td>the</td>
<td>a</td>
</tr>
<tr>
<td>3</td>
<td>a, the</td>
<td>a</td>
</tr>
<tr>
<td>4</td>
<td>a, the</td>
<td>a, the, zero</td>
</tr>
</tbody>
</table>

As can be seen, the child first associates a with specific referents (i.e. stage 1), though later in stage 2 a is de-associated with specific referents and used with non-specific referents. The association of a with specific referents is re-established in stage 3 and thereafter. It should be noted that not all studies support stage 2. Cziko (1986) found that four studies (i.e. Emslie & Stevenson, 1981; Garton, 1983; Karmiloff-Smith, 1979; Maratsos, 1976) did not produce the pattern of errors predicted by stage 2. Instead, these studies found that learners as young as two to four years old used the indefinite article correctly with specific indefinite referents, and did not manifest the overuse of the with specific indefinites. Given the mixed results, we cannot be sure whether the child acquires the specific use of a earlier than the non-specific use of a, but the fact that the child first uses a with specific referents as predicted by stage 1 is uncontroversial. The earlier acquisition of specific a than that of non-specific a in L1 acquisition by young children suggests that there may be a similar pattern in L2 acquisition.

The accuracy of a in different semantic contexts reported in the current research parallels the historic development of a from numeral one in English as well as the same grammaticalization process of its counterpart in Chinese. As I have discussed, the historic development of a undergoes three stages: quantification, referentiality, and genericity (Givón, 1981, 1984). The indefinite article is used referentially before it can be used in a generic sense. To further distinguish the referential use of a according to Heine (1997), the indefinite article is first used a presentative marker that introduces a referent into the discourse followed by further elaboration of the referent. In other words, it is first used in the most specific context (i.e. both semantically specific and pragmatically specific), then it can be used in a semantically specific context that is not necessarily pragmatically specific, and finally it can be used as a non-specific marker. The current research found that learners are more accurate in a semantically specific context than in a semantically non-specific context, and also that pragmatic specificity (in particular, explicit confirmed knowledge of the referent) increases the accuracy of a. This order of accuracy mirrors the diachronic extension of a from the most specific context to the less specific or non-specific context. A similar remark is made by
Robertson (2000) who found that Chinese learners overused numeral *one* for the indefinite article and commented that the interlanguage development of these learners mimicks the diachronic development of the indefinite article in both English and Chinese.

This order of acquisition may be related to the frequency and communicative importance of certain semantic contexts as opposed to other contexts. First, the generic context rarely occurs in our daily usage. The vast majority of semantic contexts are non-generic. Biber, Jacobsson, et al. (1999) reports that the generic use of *the* accounts for between less than 2.5% and 5% of all the reference patterns of *the* (p. 266). The same corpus did not report the proportion of the generic use of *a*, but we can surmise that generic *a* is even scarcer, given the countability constraint on *a* but not on *the*. Second, within the non-generic contexts, the specific context is probably more frequent than the non-specific context. The reason may be that specific referents are communicatively more important than non-specific referents, because “human communication is by and large—or ‘prototypically’—about real events and referential individuals”, as Givón (1984, p. 434) said. If frequency and communicative importance do have a role to play, it is not difficult to understand that the learners acquire the indefinite article in the more prototypical or the more frequently occurring contexts earlier than the other contexts.
Notes

1 It should be noted that the NP in the complement position is not always non-specific. For example, the existential there construction allows a specific NP. Despite this, the NPs as complement are predominantly non-specific due to their inherent grammatical function.

2 C. N. Li and Thompson (1989) made a more extreme claim that non-specific noun phrases never take classifier modifiers (p. 130). This claim is partially true, but it fails to recognize that the omission of classifiers is a matter of degree. X. Li and Bisang (2012) observed that indefinite [classifier + noun] is non-specific and [yi + classifier + noun] is ambiguous between specific, non-specific and cardinal readings. This view differs from Lü (2002) about the distribution of [classifier + noun] and [yi + classifier + noun], but it agrees to the latter that [classifier + noun], where yi is omitted, is non-specific.

3 Here the proportion of a in non-specific subjects is 43.1%, slightly different from the accuracy of a in the same context (i.e. 43.2%) in Chapter 5, because the calculation of accuracy excludes missing values from the total number of obligatory contexts while the proportion is based on the total number of obligatory contexts including missing values.

4 There are 110 university participants each doing 8 items in the pragmatically specific context and 8 items in the pragmatically non-specific contexts. The overall count for each context should be 1760. There is one missing value in the pragmatically non-specific context, making the total 1759.

5 For item 46, 44% of the university students and 40.0% of the middle school students chose the in place of a. For item 27, 14.5% of the university students and 31.8% of the middle school students chose the. For item 32, 10.0% of the university students and 15.5% of the middle school students chose the.

6 The forced-choice elicitation task in Ionin et al. (2004) did not have a context equivalent to the semantically non-specific and pragmatically specific context (i.e. [-s, +p]) as in the current study. Their definition of pragmatic specificity is based on a semantically specific context.

7 Despite the objective evidence that the middle school students were of a lower proficiency than the university students, the former rated themselves slightly higher than the latter in all aspects of English ability in the background questionnaire. Perhaps the middle school students were assessing themselves against their peers at their own stage of formal education. This points to the limitation of self-assessment.

8 The accuracy displayed here differs slightly from the accuracy in the other analyses, as it only includes the items that have a certainty score.

9 The correlation coefficients displayed here are Spearman’s rho coefficients for the university students and Pearson’s correlation coefficients for the middle school students. As the scores for the former group were not normally distributed, a non-parametric test was used accordingly.
Chapter 8 Conclusion

The research reported in this thesis investigated how Chinese learners of English used the indefinite article and whether their accuracy and error types were related to particular grammatical, linguistic, and semantic-pragmatic contexts. To answer the research questions, the research collected both free production and artificially elicited data, resulting in two separate studies: a corpus study and an elicitation study. In the corpus study, 101 Chinese university students’ compositions were selected from CLEC (Chinese Learner English Corpus), and learners’ (mis)use of the indefinite article was coded in terms of the properties of nouns, the linguistic contexts of noun phrases, and the semantic-pragmatic contexts. In the elicitation study, a grammaticality judgement test and an article choice test were used with Chinese learners of different proficiency levels (i.e. 118 middle school students and 112 university students). Some research questions were addressed by one study while others were collectively answered by both studies.

This chapter will summarize the findings in the current research, discuss the pedagogical and theoretical implications from the findings, address the limitations of the research, and finally suggest directions for future work.

8.1 Summary of findings

The results of the research will be summarized below in relation to each research question.

8.1.1 General accuracy of the indefinite article

RQ 1. How accurate is Chinese L2 learners’ knowledge of the indefinite article?

1. The general accuracy of the indefinite article differed across tasks: student compositions > article choice test > GJT. The task type, the nominal contexts included in the tasks, and learners’ attention to the form all had an effect on the general accuracy.

2. The higher proficiency learners (i.e. the university students) also had a higher level of accuracy of the indefinite article than the lower proficiency learners (i.e. the middle school students).

3. The better performance of the higher-level learners was not only reflected in their being more accurate, but also in their being more consistent in article usage. The lower-level
learners showed more optionality or variability in article usage than the higher-level learners. The variability in article usage indicates that these learners did not yet have a firm grasp of article usage.

8.1.2 The effect of noun properties

RQ 2. How are the formal properties of nouns (e.g. countability and concreteness) related to learners’ (mis)use of the indefinite article?

1. The university-level learners’ use of the indefinite article was closely related to count nouns. In the student compositions 98.1% of the indefinite articles occurred with count nouns.

2. The concreteness/abstractness of nouns was related to the university-level learners’ use of the indefinite article. In obligatory contexts, the accuracy of a with concrete nouns was significantly higher than the accuracy with abstract nouns.

3. There was no significant relationship between article error types and the concreteness or abstractness of nouns, but there were more omission errors with abstract nouns than with concrete nouns and there were more overuses of a for zero article with abstract nouns.

8.1.3 The effect of linguistic context

RQ 3. How are the linguistic contexts of NPs (e.g. the grammatical function of NPs in a sentence and whether there are modifiers in the NP) related to learners’ (mis)use of the indefinite article?

Grammatical functions of NPs

1. The accuracy of the indefinite article differed across syntactic positions. There was a slight difference in the rank order of accuracy between the student compositions and the GJT, while in both types of data the object position had the lowest accuracy and the complement position displayed a high accuracy. Different syntactic positions were associated with different types of errors, and the association may be related to the relative frequency of articles in different positions, the semantic inclination of different positions, and L1 transfer.

2. There was a greater proportion of overuse of the in the subject position than in the object position. This could be attributed to the definiteness-inclined nature of the subject in both L1
Chinese and L2 English, and the dominant use of the definite article in the subject position in English.

3. There was a greater proportion of overuse of the zero article for a in the object position than in the subject position. This may be related to the learners’ association of a with the indefinite determiner yi + classifier in Chinese. Yi can be omitted in the post-verbal object position, but cannot be omitted from the subject position.

Modification of NPs

1. Modification of NPs had no significant effect on the accuracy of the indefinite article. The accuracy of the indefinite article in modified NPs was the same as the accuracy in unmodified NPs. There was also no association between error types and whether a noun was modified or not.

2. The proportion of the overuse of the for a in unmodified noun phrases was not significantly different from that in pre-modified noun phrases.

8.1.4 The effect of semantic contexts

RQ 4. How are the semantic contexts of NPs (i.e. specific, non-specific, and generic contexts) related to learners’ (mis)use of the indefinite article?

1. Accuracy in the generic context was significantly lower than in the non-generic contexts (including the specific and non-specific contexts). The lower accuracy in the generic context was attributed to L1 transfer. Learners may have associated a with yi + classifier in Chinese, which cannot occur as subject of a generic sentence in Chinese.

2. Within the non-generic contexts, the corpus study and the GJT showed that the accuracy in the semantically specific context was significantly higher than in the semantically non-specific context. In contrast, the article choice test did not show that semantic specificity had a significant effect on the accuracy of the indefinite article. The difference could be explained by the effect of task type.

3. There was more overuse of the or the zero article in place of a in the semantically non-specific context than in the specific context for obligatory occasions and there was more overuse of a for the zero article in the semantically specific context than in the non-specific
context for non-obligatory occasions. The error patterns also suggest learners’ association of the indefinite article with the specific meaning.

4. The university students had a higher accuracy in the non-generic context than the middle school students but a lower accuracy in judging the use of generic a than the middle school students. This relates to the low frequency of generic a in English and suggests that a longer period of learning does not necessarily increase exposure to generic a.

8.1.5 The effect of specificity

RQ 5. How are the semantics of ‘specificity’ related to learners’ (mis)use of the indefinite article?

1. Semantic specificity had a positive effect on the accuracy of the indefinite article, as mentioned earlier. This effect was significant in the corpus study and in the GJT, but not significant in the article choice test, probably due to a task effect.

2. Pragmatic specificity had a positive effect on the accuracy of the indefinite article. This effect was significant for the university students but not for the middle school students. Pragmatic specificity had only a small effect, which shows that its influence on the accuracy of the indefinite article was subtle. Learners of a higher proficiency may be more sensitive to this discourse-level phenomenon (i.e. the discourse salience of a referent) than learners of a lower proficiency and this explains why pragmatic specificity had an effect on the former but not on the latter.

3. Explicitly stated knowledge of the referent (i.e. ESK) had a positive effect on the accuracy of the indefinite article. This effect was marginally significant for the middle school students, but not for the university students. The different effect suggests that the middle school students relied more on the objective identifying attributes of the referent that were expressed in the speaker’s statement while the university students were not basing their judgment of articles on the objective identifiability of the referent.

4. The different effects of pragmatic specificity and explicitly stated knowledge suggest that learners who differ in proficiency have different strategies when deciding which articles to use. Their choice of articles may be influenced by the communicative importance of the referent. The middle school students tended to judge the communicative importance of a referent using objective information (i.e. confirmed knowledge of the referent), while the
university students were more sensitive to the discourse salience of a referent or the continuity of the discourse around the referent, regardless of the objective identifiability of the referent.

5. The higher accuracy of the indefinite article in specific contexts than in non-specific contexts indicates that these learners had acquired the specific meaning of a earlier than the non-specific meaning of a, probably because the use of the indefinite article is more prototypical with a specific meaning than with a non-specific meaning.

To conclude, the Chinese learners’ (mis)use of the indefinite article is affected by a combination of factors, including the properties of nouns (i.e. the countability and the concreteness/abstractness of nouns), the linguistic context of the noun phrases (i.e. the syntactic position of the noun phrases), the semantic context of the referent (i.e. specific, non-specific and generic contexts), and learners’ perception of the communicative importance of the referent through topic continuity or their objectively identifying attributes of the referent. Combining all the difficult features, overuses of the for a or omissions of a are most likely to occur with nouns which are abstract, function as objects, are semantically non-specific and pragmatically non-specific or pragmatically specific but [-ESK] (i.e. the speaker denies familiarity of the referent).

8.2 Theoretical implications

The current research found that various grammatical, linguistic and semantic-pragmatic contexts can affect Chinese learners’ (mis)use of the indefinite article. I will discuss a number of issues related to the findings and the methods used in the research that may contribute to our understanding of article acquisition.

8.2.1 The effect of specificity

The current research found that specificity had a positive effect on Chinese learners’ accuracy with the indefinite article. Learners of different proficiencies were more accurate in using the indefinite article in the specific context than in the non-specific context, and learners overused the or omitted a more often in the non-specific context. This finding contradicts several previous studies that found that learners tended to overuse the for a in the specific context and overuse a for the zero article in the non-specific context (e.g. Ionin, 2003; Kim & Lakshmanan, 2009; Sarko, 2009; M. Yang, 2012; Zhou, 2008). Nevertheless, this finding is
supported by the results for both the intermediate and advanced L1 Chinese learners in Dai and Wei (2008) and the advanced L1 Russian learners in Ionin et al. (2004). In addition, this finding can be explained in terms of the prototypicality effect of the specific meaning of the indefinite article. As pointed out in the discussion chapter, diachronically the use of the indefinite article extends from the most specific context (i.e. both semantically specific and pragmatically specific), to a less specific context (i.e. semantically specific, regardless of pragmatic specificity), and then to a non-specific context (i.e. semantically non-specific). The process of the grammaticalization of the indefinite article, as well as the communicative importance of the specific meaning compared to the non-specific meaning, suggests that the specific meaning is prototypical of the indefinite article. Thus the learners’ higher accuracy in the more prototypical context supports the claim that linguistic prototypicality affects L2 learners’ acquisition and use of grammatical structures. Prototypicality effects have been well researched in psychology, but only a few studies have explored the prototypicality effect on L2 learning and performance (e.g. Andersen & Shirai, 1994; Bardovi-Harlig, 2000; Hu, 2002; Yamaoka, 1988). Hu (2002) observed that the specific use of a is prototypical while generic a is peripheral. The current research also supports this distinction in that the learners’ accuracy in the generic context was much lower than in the specific context.

The mixed results concerning the effect of specificity can in part be explained by differences in how the concept of specificity has been operationalized. The current research underscores the importance of a clear and explicit definition of specificity and of comparing findings from studies where it was similarly defined. Otherwise, the results cannot be directly compared, or worse, the differences in definitions will lead to misinterpretation of the results. The current research has contributed by clarifying the different definitions of specificity found in previous studies and by separating the pragmatic dimension of specificity (i.e. discourse salience of the referent) from the semantic meaning of specificity (i.e. referential uniqueness) and so avoiding conflating these two concepts.

8.2.2 The effect of task type

The findings of the current study also bear out the effect of task type on learners’ use of articles. In the corpus study, the learners’ high accuracy in the compositions reflects the nature of the task. The overall high accuracy may not be indicative of the learners’ competence in using articles accurately as there were few obligatory occasions for the use of the indefinite article in the data collected. As the use of articles can be affected by assorted
factors, the general accuracy of articles in a given task can be misleading if we do not take into account the type of the task, what kind of knowledge the task is likely to tap into, and what types of nominal contexts the task elicits. In the elicitation study, the GJT resulted in a significant effect for semantic specificity while the article choice test did not. Task type also had a role in explaining the different effects here: the GJT elicited productive knowledge and the article choice test elicited receptive knowledge of the indefinite article. The difference in the results further demonstrates the importance of interpreting the results in relation to task type.

8.2.3 The value of error analysis

Even though error analysis suffers from a number of limitations, the study of learner error remains important in second language acquisition research and also has pedagogical significance (Ellis & Barkhuizen, 2015, p. 70). The analysis of article errors provides a basis for predicting potential errors and thus is of value to teachers and materials writers. It is important to define errors narrowly by providing a detailed characterization of errors in terms of the contexts that they occur in. This is especially necessary for article errors as the use of articles depends on a host of linguistic and extra-linguistic factors. The corpus study coded learners’ errors as well as the correct use of the indefinite article in terms of the properties of nouns, the modification in the noun phrases, the syntactic position of the noun phrases, and the semantic and pragmatic meaning of the noun phrases in order to pinpoint the potential contexts that gave rise to errors. The GJT and the article choice test were experimental attempts to explore the association between the (mis)use of the indefinite article and different syntactic and semantic-pragmatic features. The research analysed the association of error types with certain contexts and suggested the underlying reasons for the errors. The contexts of the errors are of pedagogical significance and will be discussed later.

The current research showed that error analysis has its value in studies of article acquisition, providing that the contexts where the errors occur are well-described so that the source of difficulty can be determined. The errors that persist at an advanced stage of language learning ‘not only reflect the learners’ knowledge of the language but also reveal the aspects of article usage that are the most difficult to learn and thus suggest what a pedagogical treatment might require’ (Master, 1995, p. 185).
8.3 Pedagogical implications

The research found that learners committed different types of errors in different grammatical, linguistic and semantic-pragmatic contexts. I will offer some pedagogical suggestions based on these identified error types and then discuss the necessity of teaching/learning articles before finally suggesting ways to improve article accuracy for learners of a higher proficiency.

8.3.1 Difficult features for article usage

The findings of the current research pointed to the difficulty learners have with abstract nouns and with the non-specific and generic contexts. These two problems will be addressed below.

Countability and abstractness of nouns

The research showed that learners were less accurate in using the indefinite article with abstract nouns. It is widely recognized to be difficult for learners to decide on the countability of nouns, especially those that are abstract nouns (Hiki, 1991; White, 2009; Yoon, 1993). The difficulty comes from the following two aspects. 1. The countability of nouns is not fixed. Instead, most nouns can either take a count form and a non-count form or a mass form. 2. The presence of modifiers with an abstract noun sometimes results in a shift from the zero article to the indefinite article. As the rules around countability are complex and also the phenomenon of the shift between the count form and the non-count form may pass unnoticed by learners, explicit instruction on the formal properties of nouns is recommended.

Learners’ attention should be drawn to the dynamic nature of countability. Some textbooks include a sorting activity to teach noun countability (i.e. asking learners to separate count nouns from non-count nouns independent of any context) (Celce-Murcia et al., 1999, p. 290). This kind of activity is somewhat misleading as countability is not static but subject to change in different contexts. For example, the word food is typically taught as a noncount noun but we can also say ‘foods’, referring to different kinds of food. This involves a shift in perspective, from viewing things as an undifferentiated mass to viewing things as units. As a second language learner, I used to be misled by this static view of countability. To give a personal example, I used to think that coffee was an uncountable noun. It was not until three years ago when I was reading about articles in a grammar book that I came to the belated awareness that we can say a coffee to refer to a cup of coffee. I suggest learners be exposed to examples or exercises that help them understand the dynamic nature of countability and the
shift in meaning accompanied with the shift between a count form and a noncount form rather than doing de-contextualized sorting activities.

Awareness of the dual countability of nouns is the first step towards making a correct choice between a count form and a noncount form. As mentioned above and also discussed in Chapter 7, a modified abstract noun is more likely to take an indefinite article than an unmodified one. There does not appear to be any rule telling learners when to use the indefinite article with modified abstract nouns. For example, we use the indefinite article in have a great effect but use the zero article in make great progress. It is not surprising to find learners overusing a for the zero article in make great progress as it is hard to distinguish whether a is or is not required. Learners’ confusion about noun countability is also reported in H. Li and Yang (2010). They found that Chinese English-major undergraduates overused a in place of the zero article before the noun phrase great courage and strength, because the learners assumed that many uncountable nouns could turn into countable nouns under certain conditions such as in a pleasure, a surprise, etc. Noun countability remained a problem even for these advanced Chinese learners. Learners cannot rely on rules or on reasoning to decide whether to use the indefinite article here. Instead, they will have to learn by memorizing specific collocations and by sharpening their intuition through extensive input.

Semantics of the indefinite article

The study found that learners had a low accuracy in judging the generic use of a. The low frequency of the generic use of articles does not give learners many opportunities to acquire this usage implicitly. Thus learners need to be explicitly taught the generic use.

Snape et al. (2016) investigated the effect of teaching the generic use of articles to learners with an article-less L1 (Japanese). The study showed that explicit instruction in generics is clearly beneficial to the Japanese learners. It is important to note that the length of instruction should be adequate enough for the instructional effect to emerge. The participants in this study had a 60-minute lesson each week for a total of 9 weeks and were likely to have experienced repeated instruction in article while the participants in Snape and Yusa (2013) only had one 70-minute class and did not improve in generics. These two studies highlight the difficulty in teaching generics. The current research did not examine the whole article system but only focused on the indefinite article. Later I will give some teaching suggestions based on the error patterns discovered in the current research.
Due to L1 transfer, Chinese learners find it hard to accept the use of generic *a* and they tend to use the zero article in place of *a*. Teachers can bring to learners’ attention the difference between English and Chinese in expressing the generic meaning. If learners identify the indefinite article with *yi* + classifier in Chinese, they will find the use of *a* as subject of a characterizing sentence incongruous as the *yi* + classifier cannot occur in such a position in a characterizing sentence. Learners should be encouraged to de-associate *a* with *yi* + classifier in Chinese and try to understand generic *a* on its own, namely to recognize that generic *a* refers to a class through picking out a representative member of the class. Learners can be directed to definitional sentences, for example, in English dictionaries, for input of generic usage, as definitions are where generic *a* is typically used. It could be argued, however, that generic *a* is not so important to learners as the generic meaning can also be expressed by the definite article and the bare plural form. There is, however, a subtle difference in the different forms. The generic pattern ‘*a* + singular noun’ is considered to be the most concrete and colloquial way of expressing a generality (Celce-Murcia et al., 1999). Therefore, generic *a* may be more suitable than other forms in less formal contexts. Access to the three forms for expressing generic meaning will give learners more flexibility.

In the non-generic contexts learners were more accurate in the semantically specific context than in the non-specific context. It is recommended that teachers and textbooks help learners distinguish between the specific meaning and the non-specific meaning of the indefinite article, which is often neglected in textbooks. Snape and Yusa (2013) investigated whether explicit article instruction in definiteness, specificity and genericity helped Japanese learners of English in article choice. They found that instruction was not very effective for the Japanese learners who were at a high immediate level, as there were no overall significant differences between the experimental and the control groups. But the study found that the Japanese learners performed well at selecting the indefinite article for both the specific and the non-specific indefinite contexts. Snape and Yusa (2013) concluded that the Japanese learners do not need instruction in the indefinite article as they are already capable of making the specificity distinction with the indefinite article. The current research also found that Chinese learners were fairly accurate in using *a* in the indefinite context, but they were more accurate in the specific context and were more likely to overuse *the* in the non-specific context, which suggests that explicit instruction on specificity is still necessary. Learners can be presented with sentences that exhibit a different degree of specificity in order to better understand that the degree of specificity should not affect the use of the indefinite article. The
use of the indefinite article is independent of whether the referent is uniquely identifiable or not (i.e. semantic specificity), whether the speaker intends to refer to the referent in the following discourse (i.e. pragmatic specificity), and whether the speaker knows anything about the referent (i.e. explicitly stated knowledge of the referent). The indefinite article cannot be omitted even if the speaker does not refer to any unique individual, or the referent is communicatively unimportant.

Lopez (2015) also noticed the necessity of teaching the semantics of specificity and compared the effects of different teaching interventions on young adult Chinese learners of English in article acquisition. The participants were divided into three groups: the Standard Instruction group received instruction on definiteness using published teaching materials, the Specificity Instruction group received instruction on both definiteness and specificity using linguistically-informed teaching materials, and the No Instruction group received no instruction in articles. This study found no evidence that linguistically-informed instruction on definiteness and specificity was more helpful than standard instruction on definiteness, and the two instruction groups did not improve more than the No Instruction group. The researcher speculated that the learners may not be able to learn the subtle distinction involved in just 3 hours. Further investigation is needed to understand whether instruction on specificity helps improve the accuracy in using the indefinite article.

8.3.2 Why should we care about articles?

There are many arguments against teachers putting a lot of effort into teaching articles. First of all, article errors are ‘local errors’ that do not usually hinder communication and are considered to be less important than ‘global errors’ (e.g. errors with connectors) that have a more obvious impact on communication (Dulay, Burt, & Krashen, 1982). Tomiyana (1980) reported that errors with connectors in student compositions were judged more negatively than article errors. From this perspective teachers should prioritize those global errors and pay less attention to article errors. Second, the effect of instruction in article usage is doubted. Pica (1985) found that instruction had little effect on the production of the complex grammatical morpheme a, but instruction could assist production accuracy for the simple plural morpheme –s. Therefore, she suggested that “more complex areas of the target grammar might be excluded from direct presentation in the second-language syllabus, so that increased attention can be given to items which appear to respond favorably to classroom
presentation and practice” (p. 221). Third, regardless of the effect of instruction, teachers may feel it is not worthwhile to teach articles.

Why, then, should we EFL learners care about articles? The question depends on the purpose of learning and the learners’ motivation to use articles correctly. If the purpose of learning is successful communication, global errors rather than local errors should be prioritized, but if the goal of learning is to attain near native-like proficiency, then local grammatical features need to be mastered as well (Dulay et al., 1982). Learners who want to approximate native-like proficiency may be more motivated to get articles right as articles are one of the few aspects of grammar that remain a problem at the advanced stage of learning. Also, writing in the academic setting sets a higher standard for grammatical accuracy. In the academic setting, though article errors do not usually affect the content of the writing, they can have a negative effect on the reader, giving rise to an impression that the writer has inadequate control of the language (Master, 1995). One of my fellow PhD students once remarked that she never thought she had any problems with articles before she started her postgraduate study. Her postgraduate coursework seems to demand a higher level of accuracy in writing, which made her pay attention to the details (e.g. articles) in writing that she used to neglect. This example indicates that at least for some EFL learners teachers should care about article usage.

8.3.3 What can we do to improve accuracy?

Systematic teaching of articles has been found to be effective according to a number of previous studies (Akakura, 2009; Master, 1987, 1994; Snape et al., 2016; Yeung, 1992). Nevertheless, instruction has its limits. For article usage that cannot be easily explained by rules, for example, whether to use a before modified abstract nouns as mentioned above, learners need to make efforts on their own. Master (1997b) suggested that learners at the advanced level ‘should be encouraged to keep records of their errors so that they become in essence researchers on their own linguistic behavior’ (p. 227). This is especially useful for memorizing conventional usage. Asking learners to keep records of their errors is only possible when learners are aware of their errors. This depends on the teachers’ correction of article errors, and the learners’ self-study in the absence of feedback from the teachers. For self-study, I suggest learners check a native speaker corpus for article usage when they feel uncertain. The corpus allows us to compare the use of different articles in different contexts. For example, we can compare the sentences where the zero article is used with the noun enthusiasm and the sentences where the indefinite article is used with the same noun.
Reading through the examples will give us an idea of the subtle difference and gradually our knowledge of articles will build up.

8.4 Limitations

The corpus study had a number of limitations. First of all, there were not many errors in the sampled compositions, which limited the ability of the study to test the relationship between error types and different contexts. Second, as the corpus study could not control for potential covariates, it is not possible to arrive at clear conclusions regarding the association of errors with certain features. Third, it was difficult to code the semantic contexts and the correct suppliance of the indefinite article in the student compositions. One-third of the coding was checked by a native speaker of English and all the coded errors were checked by three native speakers to ensure reliability. Still, coding reliability could have been further improved if all the codes had been checked by one or two native speakers.

The major problem with the GJT was that we could not be sure whether learners’ judgement of the generic sentences reflected their understanding. It is assumed that learners who judged generic *a* or generic *the* correctly understood the generic meaning of these sentences, but it is also possible that they understood them in the non-generic sense. This limitation of the GJT results from the one-to-many mappings between the form and meaning of articles.

Learners’ self-assessment of their English ability was shown to be an unreliable measure of their proficiency. The middle school students rated themselves slightly higher than the university students in all aspects of English ability in the background questionnaire. This can be attributed to the subjectivity of the rating as well as the fact that the scale itself was not fine-grained enough. This problem, however, did not affect the findings of the research, but does point to the need to be cautious about the use of subjective ratings in future research.

Finally, the finding that learners acquired the specific meaning of the indefinite article earlier than the non-specific meaning should not be generalized to learners with different L1s. The participants in the current study were L1 Chinese learners of English. The higher accuracy of *a* in a specific context than in a non-specific context may be related to learners’ association of *a* with *yi* + classifier in Chinese. Previous studies have also pointed out that *yi* + classifier is beginning to function as the indefinite article (and *nei* ‘that’ in Chinese is also emerging as a grammaticalized definite article) and there may be an L1 transfer effect (Robertson, 2000; Snape, 2009; Snape et al., 2006). We are not sure whether the earlier acquisition of the
specific meaning than the non-specific meaning is related to a general prototypicality effect in the absence of L1 transfer or mainly due to L1 transfer. Further research on learners with different L1s is needed to determine whether this order of acquisition is affected by L1.

8.5 Future work

I would like to suggest four lines of further inquiry:

1. The current research found that learners were more accurate in using the indefinite article in a specific context than in a non-specific context. Further research is needed to determine whether learners’ use of the indefinite article is affected by the specificity of the context, that is, whether the uniqueness of the referent, the salience of the referent in the discourse, and the speaker’s objective knowledge of the referent can affect learners’ choice of articles. Also, as mentioned above, further research involving learners with different L1s can test whether learners in general acquire the specific meaning of a earlier than the non-specific meaning.

2. The current research analyzed learners’ knowledge of the indefinite article in writing and in the untimed GJT and article choice test. Writing and the GJT and the article choice test are arguably biased toward the use of the explicit knowledge. Future work could investigate learners’ implicit knowledge of a, for example, in spontaneous oral production. Ellis (2009b) reported a marked difference between implicit knowledge scores and explicit knowledge scores for some grammatical structures. For example, the indefinite article had a low score in terms of implicit knowledge, but a high score in terms of explicit knowledge. It would be interesting to see whether learners’ implicit knowledge of the indefinite article shows the same patterns in accuracy and in errors as found in the current research.

3. Despite the limitations of the corpus study (e.g. the avoidance of unfamiliar structures), corpus studies have their advantages. They show how learners use articles in free writing and the errors reflect the problems the learners have in actual writing. It would be worthwhile to expand the sample size of the current corpus study to collect more article errors so that more powerful statistical analyses can be used. A different corpus could be used in future research, or student compositions could be collected from academic writing courses to build up a new corpus. Results from such a corpus study could lead to a list of common article errors in writing, which would be of considerable pedagogical value.
4. I have proposed some pedagogical suggestions above. Whether these suggestions will improve learners’ accuracy with the indefinite article needs to be investigated experimentally. Future studies can look into whether teaching countability as a dynamic phenomenon is more effective than teaching countability traditionally as a binary phenomenon. Also, studies could be carried out to explore whether helping learners distinguish between the specific meaning and the non-specific meaning of a, or between the different degrees of specificity will help to prevent the omission and commission errors in the non-specific context.
References


Ellis, R. (2009a). Implicit and explicit learning, knowledge and instruction. In R. Ellis, S. Loewen, C. Elder, R. Erlam, J. Philp, & H. Reinders (Eds.), *Implicit and explicit knowledge in second language learning, testing and teaching* (pp. 3-29). Bristol, UK; Buffalo, N. Y.: Multilingual Matters.


## Appendix A Literature Summary

### Table A1 Studies on the indefinite article in L2 acquisition

<table>
<thead>
<tr>
<th>Study</th>
<th>Type</th>
<th>Subjects</th>
<th>Proficiency level</th>
<th>Measures</th>
<th>Relevant findings</th>
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</table>
| Hakuta (1976)| Longitudinal (60 weeks) | A 5-year-old ESL learner (L1 Japanese) | 5 months of exposure to English before onset of study | Spontaneous speech recorded every two weeks | 1. Many of the learner’s errors were due to failure to make the specific-non-specific distinction\(^1\) and the use of *a* with uncountable nouns.  
2. The learner performed better on *the* than on *a*. |
| Huebner (1983)| Longitudinal (1 year) | An adult ESL learner in early twenties (L1 Hmong) | No formal English training before study began | Free speech recorded on an average of every three weeks | The learner overused *the* in all the [-HK] contexts, but stopped using *the* in [-SR, -HK] earlier than in [+SR, -HK]. |
| Parrish (1987)| Longitudinal (4 months) | A 19-year-old ESL learner (L1 Japanese) | Beginning level; 6 years of English instruction prior to the study | Story telling on restricted topics recorded every ten days | 1. The learner overused *the* in [+SR, -HK], but did not use it in [-SR, -HK]; she did not use *a* in [-SR, +HK] and [+SR, +HK], indicating an association of *the* with [+SR] and *a* with [-HK].  
2. The learner acquired *the* more quickly than *a*.  
3. The learner tried to keep consistent the article use in non-chunks and in chunks. |
| Tarone (1985)| Cross-sectional | 20 adult ESL learners (10 L1 Japanese, 10 L1 Arabic) | Advanced level | Three types of tasks: 1. a written grammaticality judgment task, 2. an oral narration or description task and 3. an interview with an English native speaker. | The accuracy of articles was lowest on the written task that was supposed to require the most attention to form, but highest on the narration task that required the least attention to form, while the accuracy of the third person singular morpheme followed an opposite pattern, increasing with the amount of attention to form. |
| **Tarone and Parrish (1988)** | **Cross-sectional** | **Same as above** | **Same as above** | **The same data as above, but re-analysed using Huebner’s (1983) system.** | **1. Different tasks elicited different proportions of NP types, probably due to the various communicative functions of the tasks.**
**2. The accuracy rate of article usage with Type 3 [+SR, -HK] NPs was significantly lower than with Type 1 [-SR, +HK] and Type 2 [+SR, +HK] NPs.** |
| **Thomas (1989)** | **Cross-sectional** | **30 adult ESL learners aged 24-46 years old (L1 mixed)** | **Grouped into three proficiency levels: high, mid, and low.** | **A picture description task that elicited various NP environments for article usage** | **1. The accuracy rate of *a* was significantly lower than *the*.**
**2. Learners of article-less first languages omitted articles more frequently than learners whose first languages have articles, probably due to L1 transfer.**
**3. Learners at all three proficiency levels overgeneralized the use of *the* into the first-mention [+SR, -HK] context but rarely in the [-SR, -HK] context, indicating their association of *the* with the [+SR] feature.** |
| **Young (1996)** | **Cross-sectional** | **6 young adult EFL learners (3 L1 Czech, 3 L1 Slovak)** | **Grouped into high and low proficiency levels by TOEFL scores** | **Six interviews with a native English speaker** | **1. Both lower-level and higher-level learners omitted the indefinite article a lot.**
**2. Higher-level learners encoded definiteness most often with specific reference and unique reference in the [+HK] context, but also overused *the* with first-mention [+SR, -HK] and equational [-SR, -HK] NPs.**
**3. Singular number is strongly associated with the indefinite article while noncount nouns and especially plural nouns have very small weightings according to VARBRUL analysis.** |
| **Butler (2002)** | **Cross-sectional** | **80 adult EFL learners (L1 Japanese)** | **College students in Japan, grouped into three proficiency levels** | **Immediate interview after a fill-in-the-article test** | **Interview on learners’ metalinguistic knowledge shows that:**
**1. Learners initially linked *the* with the [+SR] feature.**
**2. Lower-level learners tended to think of noun countability as a static notion.**
**3. Learners had different word-article collocational hypotheses.** |
Learners’ article production was better with abstract nouns than with concrete nouns in the singular. It is assumed that they associate a with the individuation of non-discrete referents. Learners may feel the use of a with concrete referents redundant, so they tend to omit a with concrete referents rather than with abstract nouns.

The study proposed the Article Choice Parameter and the Fluctuation Hypothesis to explain learners’ error patterns: learners overuse the with specific indefinites and overuse a with non-specific definites. This is attributed to the mis-setting of the article parameter.

Learners’ article use is influenced by the speaker’s alleged familiarity with the referent, rather than influenced by the specificity of the referent as claimed in Ionin et al. (2004). Learners overused the in a context where the speaker expressed confirmed knowledge of the referent (i.e. [+ESK]), and overused a in a context where the speaker denied familiarity of the referent (i.e. [-ESK]), regardless of the specificity of the context.

Notes

1 Hakuta (1976) used Brown’s matrix (1973) which classified noun types by speaker specificity and hearer specificity, thus the ‘specific-non-specific’ distinction referred to by Hakuta does not strictly correspond to the [+/-SR] feature defined in Huebner (1983). Instead, it may include both [+/-SR] and [+/-HK] distinction.
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<tr>
<th>Study</th>
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<tbody>
<tr>
<td>Robertson (2000)</td>
<td>Cross-sectional</td>
<td>18 adult ESL learners (17 L1 Mandarin, 1 L1 Korean, but native-like in Mandarin)</td>
<td>At least of a proficiency required for admission to a post-graduate degree at a British university</td>
<td>A referential communicative drawing task</td>
<td>Article omission occurred in 22% of obligatory contexts. Non-suppliances were summarized by three principles which may be due to L1 influence: 1. Learners tend to omit articles with a NP if it is within the scope of the determiner of a preceding NP. 2. Learners do not mark [+/-definite] if the meaning is recoverable from the context. 3. Learners use demonstratives and numeral one in place of articles.</td>
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<td>Yan (2003)</td>
<td>Cross-sectional</td>
<td>Chinese EFL learners (senior high school and university-level English major and non-English major students)</td>
<td>Six proficiency levels from low to advanced</td>
<td>Learners’ compositions drawn from the CLEC corpus</td>
<td>The number of article errors decreased as learners’ proficiency level increased, but some kinds of errors, such as article omission, occurred more frequently among higher-level learners.</td>
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<td>Cai and Wu (2006)</td>
<td>Cross-sectional</td>
<td>Chinese EFL learners (non-English major first- and second-years; 30 non-English major second-years for the cloze)</td>
<td>Intermediate or above</td>
<td>30 pieces of writings drawn from CLEC and a fill-in-the-article cloze test</td>
<td>1. Article omission is a problem for Chinese learners. 2. Learners overused <em>the</em> with both [+SR, -HK] and [-SR, -HK] NPs in the cloze test, but rarely so in compositions.</td>
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<td>Zhou (2008)</td>
<td>Cross-sectional</td>
<td>262 adult Chinese EFL learners</td>
<td>Divided into four levels of English proficiency</td>
<td>Grammaticality judgment test based on NP types</td>
<td>1. Learners across proficiency levels had the lowest accuracy rate in their judgment about generic sentences. Article omission was attributed to L1 transfer and low occurrence of negative evidence. 2. Low accuracy with [+specific, -definite] NPs was explained by complexity of article semantics.</td>
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<tr>
<td>Zhu (2009)</td>
<td>Cross-sectional</td>
<td>Chinese EFL English major learners (48 first-years and 48 third-years)</td>
<td>Upper-intermediate and advanced</td>
<td>A written test composed of blank-filling, error correction, and cloze items.</td>
<td>1. Learners’ acquisition of the indefinite article was better than the definite article and zero article. 2. Learners of both proficiency levels overused <em>the</em> for <em>a</em> with nouns having modifiers.</td>
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<td>Yang (2012)</td>
<td>Cross-sectional</td>
<td>55 Chinese EFL learners</td>
<td>First-year English major undergraduates</td>
<td>A forced choice elicitation task modelled on Ionin et al. (2004) and a written interview</td>
<td>The results contradicted Trenkic’s (2008) claim that overuse of <em>the</em> is tied to the [+ESK] context and supported Ionin et al. (2004) that overuse of <em>the</em> is associated with the specific contexts. But learners overused <em>a</em> more in [-ESK] contexts than in [+ESK] contexts (in one version of the test, but not in the other version), which partially supported Trenkic (2008).</td>
</tr>
</tbody>
</table>
PARTICIPANT INFORMATION SHEET

(Chinese students)

Project title: An empirical study on Chinese students’ knowledge of the indefinite article

Researcher: Jiayan Lin

Researcher introduction
My name is Jiayan Lin, a PhD candidate from the School of Cultures, Languages and Linguistics, Faculty of Arts, The University of Auckland.

Project description and invitation
The project aims to explore how Chinese learners of English use the indefinite article and whether their omission or commission errors are related to certain grammatical, linguistic or semantic-pragmatic contexts. The research topic has practical significance as the acquisition of articles is often cited as one of the most difficult aspects of English grammar for learners of English as a second language. Previous studies show that learners have problems with all of the three articles, especially with the indefinite article. Findings from the project may have pedagogical implications that can inform article instruction in a foreign language classroom.

The project will use two tasks to elicit learners’ knowledge of article usage: 1. A forced-choice elicitation task where learners are asked to choose the most appropriate article in given conversations. 2. A grammaticality judgment test where learners are asked to judge whether the use of articles in the given sentences are correct or not. Learners will also complete a language background questionnaire and the background information will be taken into account when the researcher is analyzing the results of the language tasks.
I would like to invite you to participate in this research. Your voluntary participation is greatly appreciated.

**Procedures**

You will be asked to do two pen-and-paper tasks (i.e. an article choice task and a grammaticality judgment task as mentioned above) and complete one language background questionnaire. The three documents will be stapled together in the form of a booklet and you will spend about 45 minutes completing them all. You will be doing the tasks in several batches in a lab, depending on your availability. Participation in the project is absolutely voluntary. Your refusal or agreement to participate and any information you provide will not affect your course results or grades.

**Compensation**

Your participation in the project may be beneficial to your learning of English. By doing the tasks you will be able to reflect upon your knowledge of article usage and will learn about how accurately you have used the article after receiving the results of the tasks. You will not only receive the results of the tasks, but will also receive a summary of the findings from this project if you request it. In addition, you will receive a small gift (valued at 20RMB) as a token of thanks for your participation.

**Data storage/retention/destruction/future use**

All the data will be analysed and the results will be used for the project only. None of the data will be transferred to any public repository. The data will be kept by the researcher for 6 years, after which they will be destroyed. Specifically, hard-copy data will be locked in a secure cabinet at the researcher’s department, and digital data will be stored in a password-protected file on the university’s server.

**Right to Withdraw from Participation**

You will be free to withdraw from participating in the project at any time. You will also have the right to withdraw any data traceable to you up to 1/10/2015. However, if you have not written any identification code on your task booklet, it will not be possible to withdraw your data once you have completed the tasks.

**Anonymity and Confidentiality**
You will be asked to write a special identification code that only you can recognize on the task booklet. The use of codes rather than your real names will guarantee anonymity. The reason why the booklet is anonymous but still needs some code only known to you is that you may want to learn the results of the tasks you have completed. You need to supply the code so that the researcher can find the task booklet you submitted and email you the results. If you do not wish to learn the results of the tasks, you do not even need to write down your own identification code. In both cases, the researcher will not make any effort to identify any participant. The researcher will also not make any participant identifiable in any publication and any presentation arising from this project thereafter.

Thank you for taking time to read this information sheet. Should you have any questions, please feel free to contact any person listed below.

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<tr>
<th><strong>Researcher:</strong></th>
<th>Phone: +64 02102819266</th>
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<tbody>
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<td>Jiayan Lin</td>
<td>Email: <a href="mailto:jlin368@aucklanduni.ac.nz">jlin368@aucklanduni.ac.nz</a></td>
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<tr>
<td></td>
<td>Postal address: PhD Mailbox, Level 4, Arts 1, Building 206, 14a Symonds Street, Auckland, 1010</td>
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<tr>
<th><strong>Supervisor:</strong></th>
<th>Phone: (09) 923 4876 (office)</th>
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<tr>
<td>Rod Ellis</td>
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<th><strong>Head of School of Cultures, Languages and Linguistics:</strong></th>
<th>Phone: (09) 923 8197</th>
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<tr>
<td>Gary Barkhuizen</td>
<td>Email: <a href="mailto:g.barkhuizen@auckland.ac.nz">g.barkhuizen@auckland.ac.nz</a></td>
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</table>

Chair contact details: “For any queries regarding ethical concerns you may contact the Chair, The University of Auckland Human Participants Ethics Committee, The University of Auckland, Research Office, Private Bag 92019, Auckland 1142. Telephone 09 373 7599 ext. 83711; ro-ethics@auckland.ac.nz.”

APPROVED BY THE UNIVERSITY OF AUCKLAND HUMAN PARTICIPANTS ETHICS COMMITTEE ON ....... 03/06/15.............for (3) years, Reference Number ......014815.........
PARTICIPANT INFORMATION SHEET

(Native speakers of English)

Project title: An empirical study on Chinese students’ knowledge of the indefinite article

Researcher: Jiayan Lin

Researcher introduction
My name is Jiayan Lin, a PhD candidate from the School of Cultures, Languages and Linguistics, Faculty of Arts, The University of Auckland.

Project description and invitation
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I would like to invite you to participate in this research. Your voluntary participation is greatly appreciated.

Procedures
You will be asked to do two pen-and-paper tasks (i.e. an article choice task and a grammaticality judgment task as mentioned above). The whole process will take about 30 minutes. You will be doing the task in a lab at an arranged time, depending on your...
availability. Participation in the project is absolutely voluntary. Your refusal or agreement to participate and any information you provide will not affect any aspect of your personal life.

**Compensation**

You will receive the results of the tasks you have done and a summary of the findings from this project if you request it. In addition, you will receive a supermarket voucher (valued at 10NZD) as a token of thanks for your participation.

**Data storage/retention/destruction/future use**

All the data will be analysed and the results will be used for the project only. None of the data will be transferred to any public repository. The data will be kept by the researcher for 6 years, after which they will be destroyed. Specifically, hard-copy data will be locked in a secure cabinet at the researcher’s department, and digital data will be stored in a password-protected file on the university’s server.

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You will be free to withdraw from participating in the project at any time. You will also have the right to withdraw any data traceable to you up to 1/10/2015. However, if you have not written any identification code on your task booklet, it will not be possible to withdraw your data once you have completed the tasks.

**Anonymity and Confidentiality**

You will be asked to write a special identification code that only you can recognize on the booklet of the tasks. The use of codes rather than your real names will guarantee anonymity. The reason why the booklet is anonymous but still needs some code only known to you is that you may want to learn the results of the tasks you have completed. You need to email the code to the researcher so that the researcher can find the task booklet you submitted and email you the results. If you do not wish to learn the results of the tasks, you do not even need to write down your own identification code. In both cases, the researcher will not make any effort to identify any participant. The researcher will also not make any participant identifiable in any publication and any presentation arising from this project thereafter.

Thank you for taking time to read this information sheet. Should you have any questions, please feel free to contact any person listed below.
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Chair contact details: “For any queries regarding ethical concerns you may contact the Chair, The University of Auckland Human Participants Ethics Committee, The University of Auckland, Research Office, Private Bag 92019, Auckland 1142. Telephone 09 373 7599 ext. 83711; ro-ethics@auckland.ac.nz. ”

APPROVED BY THE UNIVERSITY OF AUCKLAND HUMAN PARTICIPANTS ETHICS COMMITTEE ON ...... 03/06/15...............for (3) years, Reference Number ......014815.........
参与者须知
（大学生）

研究课题：有关中国学生对冠词知识掌握情况的一项研究
研究者：林佳嫣

研究者简介
林佳嫣，新西兰奥克兰大学应用语言学专业博士生

研究课题简介
该研究旨在探索中国英语学习者使用冠词的情况。以往研究表明冠词是英语语法中最难习得的部分之一，二语学习者在使用冠词方面有各种问题。该研究的发现将会对英语课堂中冠词的教学有启发意义。

该研究需要学生完成三项任务：1.语言学习背景问卷；2.冠词语法判断题；3.冠词选择填空题。

我真诚邀请你参与这项研究。你的参与对于该研究的进行至关重要。

流程
你将先完成简短的语言学习背景问卷，然后完成冠词语法判断题和冠词选择填空题。
总答题时间估计45分钟左右。参与完全出自自愿。无论你参与或者拒绝参与，以及你提供的信息将不会影响你的课程成绩。

参与的收获
你可以获得一份小礼物（价值20元），以感谢你的参与。通过参与这项研究，你将对自己的冠词掌握情况有所了解。你可以获得测试的答案，以及获知该研究最后的研究发现。

数据保存
所有测试数据只用于该研究，不会泄露给第三方。研究者将保留数据6年，然后销毁数据。答题试卷将会保存在研究者大学里的办公室，电子数据将加密保存在研究者办公室的电脑上。

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你可以在测试过程中选择退出该研究。如果答题后你想撤销自己的数据，你最晚可以在2015年10月1日前选择撤销你的答题数据。但是，如果你的试卷上没有写个人代码，你将无法撤销，因为研究者无法找到你的数据。

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匿名和保密性
研究者无从获知参与者的姓名，参与者可以用只有自己知道的英文名、网名或其他代码署名，也可以选择不填。
参与者的答题数据将予以保密。研究者不会在研究过程和日后完成的论文中提及任何参与者的姓名。

感谢你阅读“参与者须知”，如果有任何问题，可以联系下面的人。

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奥克兰大学伦理委员会主席联系方式:
The University of Auckland Human Participants Ethics Committee, The University of Auckland, Research Office, Private Bag 92019, Auckland 1142. Telephone 09 373 7599 ext. 83711; ro-ethics@auckland.ac.nz. ”

APPROVED BY THE UNIVERSITY OF AUCKLAND HUMAN PARTICIPANTS ETHICS COMMITTEE ON...... 03/06/15...........for (3) years, Reference Number .......014815.....
Appendix C English Article Test

There are two parts in this test: Part 1. Grammaticality judgment task, and Part 2. Article choice task.

In the process of answering the questions, you are free to change your answers. However, please do not use an eraser or other correction tools so that your correction marks are visible.

Part 1 Grammaticality Judgement Task Instruction:
Each item below consists of one or two sentences. There is an underlined part in each item. The underlined part may contain a, the, or no articles before the noun. You are asked to do 2 things.

Step 1:
Read the item and judge whether the underlined part is grammatically correct. There are two possible choices: Correct or Incorrect. Tick the box that best describes your answer. If you judge the underlined part to be incorrect, please continue to correct it in the blank provided.
Example:
Jane Austen is a writers.
Correct ☐; Incorrect ☑
If ungrammatical, correct it here: a writer

Step 2:
Then rate how certain you are of your judgment in Step 1. You can choose from: Not certain, Fairly certain or Very certain.
Example:
How certain are you? Not certain ☐; Fairly certain ☐; Very Certain ☑

Note: There is no ‘right’ or ‘wrong’ answer for this question. Please tick the box that represents your true feelings.

Here are two items for practice.
Practice 1
I like coffee.
Before the test begins

Do you have any questions? If you do, please ask now.

There are 52 items in this test. You can start answering the questions when you are ready.

1. If you want to see a panda, the best place to go is China.
Correct □; Incorrect □
If ungrammatical, correct it here: _______________________
How certain are you? Not certain □; Fairly certain □; Very certain □

2. A lawyer was hired to help him. Guess who the lawyer is.
Correct □; Incorrect □
If ungrammatical, correct it here: _______________________
How certain are you? Not certain □; Fairly certain □; Very certain □

3. Go to ask teacher. Any teacher will be able to answer your question.
Correct □; Incorrect □
If ungrammatical, correct it here: _______________________
How certain are you? Not certain □; Fairly certain □; Very certain □

4. A monkey often represents cleverness in religion and culture.
Correct □; Incorrect □
If ungrammatical, correct it here: _______________________

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5. Though she studied medicine, she didn’t become the doctor.
Correct ☐; Incorrect ☐
If ungrammatical, correct it here: _____________________
How certain are you? Not certain ☐; Fairly certain ☐; Very certain ☐

6. A hammer is very useful in modern life.
Correct ☐; Incorrect ☐
If ungrammatical, correct it here: _____________________
How certain are you? Not certain ☐; Fairly certain ☐; Very certain ☐

7. If you want to book a hotel in Hangzhou, I can recommend some good places to stay.
Correct ☐; Incorrect ☐
If ungrammatical, correct it here: _____________________
How certain are you? Not certain ☐; Fairly certain ☐; Very certain ☐

8. The senior manager will be sent to our office. We don’t know which one.
Correct ☐; Incorrect ☐
If ungrammatical, correct it here: _____________________
How certain are you? Not certain ☐; Fairly certain ☐; Very certain ☐

9. A doctor was called immediately after the accident happened. But I don’t know who it was.
Correct ☐; Incorrect ☐
If ungrammatical, correct it here: _____________________
How certain are you? Not certain ☐; Fairly certain ☐; Very certain ☐

10. He had been the farmer for three years before he started his own business.
Correct ☐; Incorrect ☐
If ungrammatical, correct it here: _____________________
How certain are you? Not certain ☐; Fairly certain ☐; Very certain ☐

11. A restaurant will be booked for Mr. Peterson. But I don’t know which one.
Correct ☐; Incorrect ☐
If ungrammatical, correct it here: ______________________
How certain are you? Not certain ☐; Fairly certain ☐; Very certain ☐

13. A white rose stands for pure love.
Correct ☐; Incorrect ☐
If ungrammatical, correct it here: ______________________
How certain are you? Not certain ☐; Fairly certain ☐; Very certain ☐

14. Peter has read the book. I don’t know which book he has read.
Correct ☐; Incorrect ☐
If ungrammatical, correct it here: ______________________
How certain are you? Not certain ☐; Fairly certain ☐; Very certain ☐

15. A scientist made this big discovery. But I don’t know which scientist.
Correct ☐; Incorrect ☐
If ungrammatical, correct it here: ______________________
How certain are you? Not certain ☐; Fairly certain ☐; Very certain ☐

16. John loves dogs very much. He is dog lover.
Correct ☐; Incorrect ☐
If ungrammatical, correct it here: ______________________
How certain are you? Not certain ☐; Fairly certain ☐; Very certain ☐

17. A girl will be chosen to perform on stage next month. I don’t know which girl.
Correct ☐; Incorrect ☐
If ungrammatical, correct it here: ______________________
How certain are you? Not certain ☐; Fairly certain ☐; Very certain ☐
18. If you want to book the hotel in Hangzhou, I can recommend some good places to stay.
Correct ☐; Incorrect ☐
If ungrammatical, correct it here: _______________________
How certain are you? Not certain ☐; Fairly certain ☐; Very certain ☐

19. Grey is watching a film. I don’t know which film he is watching.
Correct ☐; Incorrect ☐
If ungrammatical, correct it here: _______________________
How certain are you? Not certain ☐; Fairly certain ☐; Very certain ☐

20. He studied law at school. Then he became a lawyer.
Correct ☐; Incorrect ☐
If ungrammatical, correct it here: _______________________
How certain are you? Not certain ☐; Fairly certain ☐; Very certain ☐

21. The monkey often represents cleverness in religion and culture.
Correct ☐; Incorrect ☐
If ungrammatical, correct it here: _______________________
How certain are you? Not certain ☐; Fairly certain ☐; Very certain ☐

22. If you want to see panda, the best place to go is China.
Correct ☐; Incorrect ☐
If ungrammatical, correct it here: _______________________
How certain are you? Not certain ☐; Fairly certain ☐; Very certain ☐

23. A knife is what I am looking for. Can you give me one?
Correct ☐; Incorrect ☐
If ungrammatical, correct it here: _______________________
How certain are you? Not certain ☐; Fairly certain ☐; Very certain ☐

24. The dancer didn’t arrive in time for the performance. But I don’t know which dancer.
Correct ☐; Incorrect ☐
If ungrammatical, correct it here: _______________________
How certain are you? Not certain ☐; Fairly certain ☐; Very certain ☐
25. Computer can solve many problems for human beings.
Correct ☐; Incorrect ☐
If ungrammatical, correct it here: ______________________
How certain are you? Not certain ☐; Fairly certain ☐; Very certain ☐

26. Go to ask a teacher. Any teacher will be able to answer your question.
Correct ☐; Incorrect ☐
If ungrammatical, correct it here: ______________________
How certain are you? Not certain ☐; Fairly certain ☐; Very certain ☐

27. Roy met the classmate yesterday. I don’t know which classmate he met.
Correct ☐; Incorrect ☐
If ungrammatical, correct it here: ______________________
How certain are you? Not certain ☐; Fairly certain ☐; Very certain ☐

28. A senior manager will be sent to our office. We don’t know which one.
Correct ☐; Incorrect ☐
If ungrammatical, correct it here: ______________________
How certain are you? Not certain ☐; Fairly certain ☐; Very certain ☐

29. Hammer is very useful in modern life.
Correct ☐; Incorrect ☐
If ungrammatical, correct it here: ______________________
How certain are you? Not certain ☐; Fairly certain ☐; Very certain ☐

30. I have never seen a lion. I wish I could see one.
Correct ☐; Incorrect ☐
If ungrammatical, correct it here: ______________________
How certain are you? Not certain ☐; Fairly certain ☐; Very certain ☐

31. The white rose stands for pure love.
Correct ☐; Incorrect ☐
If ungrammatical, correct it here: ______________________
32. He studied law at school. Then he became lawyer.
Correct ☐; Incorrect ☐
If ungrammatical, correct it here: ________________________
How certain are you? Not certain ☐; Fairly certain ☐; Very certain ☐

33. A dancer didn’t arrive in time for the performance. But I don’t know which dancer.
Correct ☐; Incorrect ☐
If ungrammatical, correct it here: ________________________
How certain are you? Not certain ☐; Fairly certain ☐; Very certain ☐

34. The computer can solve many problems for human beings.
Correct ☐; Incorrect ☐
If ungrammatical, correct it here: ________________________
How certain are you? Not certain ☐; Fairly certain ☐; Very certain ☐

35. Grey is watching film. I don’t know which film he is watching.
Correct ☐; Incorrect ☐
If ungrammatical, correct it here: ________________________
How certain are you? Not certain ☐; Fairly certain ☐; Very certain ☐

36. John loves dogs very much. He is a dog lover.
Correct ☐; Incorrect ☐
If ungrammatical, correct it here: ________________________
How certain are you? Not certain ☐; Fairly certain ☐; Very certain ☐

37. Monkey often represents cleverness in religion and culture.
Correct ☐; Incorrect ☐
If ungrammatical, correct it here: ________________________
How certain are you? Not certain ☐; Fairly certain ☐; Very certain ☐

38. Peter has read a book. I don’t know which book he has read.
Correct ☐; Incorrect ☐
39. **The scientist** made this big discovery. But I don’t know which scientist.
Correct  □;  Incorrect  □
If ungrammatical, correct it here:______________________
How certain are you?  Not certain  □;  Fairly certain  □;  Very certain  □

40. Though she studied medicine, she didn’t become a **doctor**.
Correct  □;  Incorrect  □
If ungrammatical, correct it here:______________________
How certain are you?  Not certain  □;  Fairly certain  □;  Very certain  □

41. **Girl** will be chosen to perform on stage next month. I don’t know which girl.
Correct  □;  Incorrect  □
If ungrammatical, correct it here:______________________
How certain are you?  Not certain  □;  Fairly certain  □;  Very certain  □

42. I have never seen the **lion**. I wish I could see one.
Correct  □;  Incorrect  □
If ungrammatical, correct it here:______________________
How certain are you?  Not certain  □;  Fairly certain  □;  Very certain  □

43. A **computer** can solve many problems for human beings.
Correct  □;  Incorrect  □
If ungrammatical, correct it here:______________________
How certain are you?  Not certain  □;  Fairly certain  □;  Very certain  □

44. **Lawyer** was hired to help him. Guess who the lawyer is.
Correct  □;  Incorrect  □
If ungrammatical, correct it here:______________________
How certain are you?  Not certain  □;  Fairly certain  □;  Very certain  □

45. Roy met a **classmate** yesterday. I don’t know which classmate he met.
46. The knife is what I am looking for. Can you give me one?
Correct □; Incorrect □
If ungrammatical, correct it here: ____________________
How certain are you? Not certain □; Fairly certain □; Very certain □

47. He had been a farmer for three years before he started his own business.
Correct □; Incorrect □
If ungrammatical, correct it here: ____________________
How certain are you? Not certain □; Fairly certain □; Very certain □

48. White rose stands for pure love.
Correct □; Incorrect □
If ungrammatical, correct it here: ____________________
How certain are you? Not certain □; Fairly certain □; Very certain □

49. John lost his way. He asked a stranger for help.
Correct □; Incorrect □
If ungrammatical, correct it here: ____________________
How certain are you? Not certain □; Fairly certain □; Very certain □

50. Restaurant will be booked for Mr. Peterson. But I don’t know which one.
Correct □; Incorrect □
If ungrammatical, correct it here: ____________________
How certain are you? Not certain □; Fairly certain □; Very certain □

51. The hammer is very useful in modern life.
Correct □; Incorrect □
If ungrammatical, correct it here: ____________________
How certain are you? Not certain □; Fairly certain □; Very certain □
52. Doctor was called immediately after the accident happened. But I don’t know who it was.
Correct □; Incorrect □
If ungrammatical, correct it here: _____________________
How certain are you? Not certain □; Fairly certain □; Very certain □

Now you’ve completed all the items in Part 1.
What did you think of this task?
Very easy □; Easy □; Moderate □; Difficult □; Very difficult □
When you are ready, you can continue to do Part 2.

Part 2 Article Choice Task Instruction:
In each item below, you will see a conversation between two people. Each conversation will have a headline specifying the context where the conversation takes place. There is a blank in each conversation. You are asked to do 2 things.

Step 1:
Read the conversation and choose the most appropriate article to fill in the blank. There are three possible choices: a/an, the or -- ('--' means nothing should be filled in the blank). Tick the box □ that best describes your answer.

Example:
Between friends
Cindy: I am really tired.
Lucy: You should have ______ good night’s sleep.
a ☑; the □; -- □

Step 2:
Then rate how certain you are of your choice in Step 1. You can choose from: Not certain, Fairly certain or Very certain.

Example:
How certain are you? Not certain □; Fairly certain □; Very certain □
Note: There is no ‘right’ or ‘wrong’ answer for this question. Please tick the box that represents your true feelings.

Here is one item for practice.

Between friends
Kate: Did you lose anything?
James: Yes. I lost ______ my books!
a ☐; the ☐; -- ☐

How certain are you? Not certain ☐; Fairly certain ☐; Very certain ☐

Before the test begins
Do you have any questions? If you do, please ask now.
There are 48 items in this test. You can start answering the questions when you are ready.

1. In a classroom
Teacher: Tell me something about London.
Student: London is in ______ United Kingdom. It’s a very big city.
a ☐; the ☐; -- ☐

How certain are you? Not certain ☐; Fairly certain ☐; Very certain ☐

2. Between friends
Gertrude: Guess what? My cousin Claudia is in Washington, D.C. this week.
Richard: What’s she doing there?
Gertrude: She is doing some interviews for her newspaper. She is interviewing ______ politician; I’m afraid I don’t know who exactly. I’ll find out when I read her article!
a ☐; the ☐; -- ☐

How certain are you? Not certain ☐; Fairly certain ☐; Very certain ☐

3. Between mother and son
Mother: Have you got everything ready for tomorrow’s test?
Son: Yes. I reviewed all the lessons and exercises. I also bought ______ new pen for tomorrow. I’ve prepared for everything I can think of. I’m going to sleep early tonight.

Mother: Good.

How certain are you? Not certain □; Fairly certain □; Very certain □

4. Between friends

Kathy: My daughter Jeannie loves that new comic strip about Super Mouse.

Elise: Well, she is in luck! Tomorrow, I’m having lunch with ______ creator of this comic strip. He is an old friend of mine. So I can get his autograph for Jeannie!

How certain are you? Not certain □; Fairly certain □; Very certain □

5. Between friends

Cindy: Did you have a good weekend?

John: Not bad. I watched ______ movie on Saturday. And I finished my homework on Sunday. How about you?

Cindy: I did a lot of shopping.

How certain are you? Not certain □; Fairly certain □; Very certain □

6. Between friends

Bill: I’m looking for Erik. Is he home?

Rick: Yes, but he’s on the phone. He is talking to ______ chairman of his company! I don’t know who that person is, but I know that this conversation is important to Erik.

How certain are you? Not certain □; Fairly certain □; Very certain □

7. Between friends

Mary: Your friend Anna has published a new novel. Did you go to her book release event?

Rex: I did. She read some passages from her book and answered readers’ questions. At the end of the event she sang ______ song. It was so touching that I was deeply moved. I never knew a writer who could sing so beautifully! It is a pity that you didn’t come.

How certain are you? Not certain □; Fairly certain □; Very certain □
8. Between friends
Tom: How was your trip to New York?
Susan: Great! I went to many museums and visited many friends. On the last day, I saw _______ play. It was very long, about three hours, but really exciting. The actors were wonderful and the lights on the stage were beautiful.
Tom: I wish I could have seen it.
How certain are you? Not certain ☐; Fairly certain ☐; Very certain ☒

9. Between friends after seeing a film
Matthew: What do you think of the film?
Ray: The story is good. But I think they should find _______ better actor. The background music is just so so. And the costumes could be better.
How certain are you? Not certain ☐; Fairly certain ☐; Very certain ☒

10. Between two reporters
Reporter 1: Do you have time for lunch?
Reporter 2: Sorry. I am busy with a story about local medicine. Today, I’m interviewing _______ famous doctor. I need to run!
Reporter 1: Good luck.
How certain are you? Not certain ☐; Fairly certain ☐; Very certain ☒

11. After a women’s running race
Reporter: Excuse me! Can you please let me in?
Guard: What do you need?
Reporter: I am a reporter. I need to talk to _______ winner of this race. I don’t know who she is, so can you please help me?
How certain are you? Not certain ☐; Fairly certain ☐; Very certain ☒
12. Between friends
Debra: What are you planning to do after you graduate from college? Are you going to get a job?
Alex: Not immediately. I am going to travel around _______ world first!
How certain are you? Not certain □; Fairly certain □; Very certain □

13. Between friends
Jane: Do you like cats?
Oscar: So so, but my sister likes cats very much. She wants to buy ______ cat. I don’t know what it will look like. Perhaps she doesn’t know either before she sees it.
How certain are you? Not certain □; Fairly certain □; Very certain □

14. Between two students
Mike: Are you satisfied with your maths teacher?
Tina: Can’t complain. I just want to have ______ lenient teacher. One that will encourage us more when we make mistakes, rather than criticize us. More importantly, someone who doesn’t give us so much homework.
How certain are you? Not certain □; Fairly certain □; Very certain □

15. Friends meeting in a park
Andrew: Hi, Nora. What are you doing here in Chicago? Are you here for work?
Nora: No, for family reasons. I am visiting ______ father of my fiancé. He is really nice, and he is paying for our wedding!
How certain are you? Not certain □; Fairly certain □; Very certain □

16. Between friends
Laura: I’d like to go for a walk. Is it nice outside?
Jenny: I think so. I can see ______ sun!
How certain are you? Not certain □; Fairly certain □; Very certain □
17. In a gift shop
Clerk: What can I do for you?
Customer: I am looking for ________ doll. It can be blue or yellow, the color my daughter likes. Also, it should not be too large for a five-year old girl.
How certain are you? Not certain □; Fairly certain □; Very certain □

18. At home
Child: Can you please give me a blue pencil?
Mother: Here you go. What are you drawing?
Child: I am drawing ________ sky.
How certain are you? Not certain □; Fairly certain □; Very certain □

19. Meeting on a street
Roberta: Hi, William! It’s nice to see you again. I didn’t know that you were in Boston.
William: I am here for a week. I am visiting ______ friend.
Roberta: Enjoy your stay. Call me when you have time.
William: Great. I will.
How certain are you? Not certain □; Fairly certain □; Very certain □

20. Between friends
Vicky: Where were you yesterday? I tried to call you, but you weren’t home.
Rachel: I went to a bookstore and bought a novel and two magazines. Then I went to a café to read ______ novel. I went home quite late.
How certain are you? Not certain □; Fairly certain □; Very certain □

21. Between friends
Taylor: My mum is going to throw a party this weekend.
Lisa: Do you need my help?
Taylor: Thanks. We just need ______ tent. We are also running out of chairs. Can you bring
some chairs?
Lisa: No problem.
  a □; the □; -- □
How certain are you? Not certain □; Fairly certain □; Very certain □

22. At home
Karen: Where’s Beth? Is she coming home for dinner?
Anne: No. She is eating dinner with ______ colleague; she didn’t tell me who it is. She
doesn’t often eat with colleagues. I guess it’s an important dinner.
  a □; the □; -- □
How certain are you? Not certain □; Fairly certain □; Very certain □

23. In a university
Paul: Do you have time for lunch?
Sheila: Sorry, I’m very busy. I am meeting with ______ president of our university, Dr.
McKinley. He is also a world-class scientist. I need to prepare something before I see him.
  a □; the □; -- □
How certain are you? Not certain □; Fairly certain □; Very certain □

24. Between friends
Alice: What did you do last night?
Robin: I went to a video store and got two videos: a German film and a video game. Then, I
came home and watched ______ film. How was your day?
  a □; the □; -- □
How certain are you? Not certain □; Fairly certain □; Very certain □

25. At a university
Professor Clark: I’m looking for Professor Anne Peterson.
Secretary: I’m afraid she is busy. She is meeting with ______ student, but I’m not sure who.
I guess it’s one of her postgraduate students.
  a □; the □; -- □
How certain are you? Not certain □; Fairly certain □; Very certain □

26. At a gallery
Sarah: Do you see that beautiful painting?
Mary: Yes, it’s wonderful.
Sarah: I would like to meet ______ creator of that painting; unfortunately, I have no idea who it is since the painting was not signed.

How certain are you? Not certain ☐; Fairly certain ☐; Very certain ☐

27. Between friends
Tan: You seem a bit stressed recently.
Rose: Yes. I am preparing all sorts of things before I move into the new house. I am looking for ______ cleaner to wash the carpet before I move in. I am trying to buy some new furniture. On top of these, packing things is most tiring. I have a lot of stuff!
Tan: I can help you.

How certain are you? Not certain ☐; Fairly certain ☐; Very certain ☐

28. Friends travelling on the subway in New York
Betty: Do you often take the subway?
Jones: Not often. Why do you ask?
Betty: Subway culture is interesting. I enjoy meeting all sorts of people on the subway. You can see rich and poor people. There are eye-catching artists. Occasionally, you can also see ______ mayor of New York City.
Jones: You must be travelling by subway a lot.

How certain are you? Not certain ☐; Fairly certain ☐; Very certain ☐

29. Between friends
Kitty: Yesterday was Father’s Day. Did you do something special?
Roger: Yes. I bought father ______ gift. Mother prepared his favorite dishes and we finished all the food. We had a lovely time!
Kitty: Cool.

How certain are you? Not certain ☐; Fairly certain ☐; Very certain ☐
30. At a birthday party
Mother: Happy birthday! What’s your birthday wish?
Boy: I have a lot of wishes. I want _____ pencil box. I want to travel by plane. I wish I could go to Egypt and ride camels. Not this year, but perhaps in the near future.
Mother: I am sure you will.
a ☐; the ☐; -- ☐
How certain are you? Not certain ☐; Fairly certain ☐; Very certain ☐

31. Between friends
Brian: Guess who I saw on Queen Street last weekend. I saw _____ director of the film *Brokeback Mountain*. A few people recognized him and asked for a photo. He was really nice.
Jenny: I am a big fan of his.
a ☐; the ☐; -- ☐
How certain are you? Not certain ☐; Fairly certain ☐; Very certain ☐

32. Between friends
Leo: I want to learn how to swim. Do you have any suggestions?
Celia: You should first get things ready. Then you should find _____ swimming teacher. You’d better go swimming together with your friends. It is safer.
a ☐; the ☐; -- ☐
How certain are you? Not certain ☐; Fairly certain ☐; Very certain ☐

33. Between friends
Peter: What kind of car do you want to buy?
Paul: I want to buy ______ classic car. It must be fast and safe. I know it would probably be expensive, but I am willing to pay for it.
a ☐; the ☐; -- ☐
How certain are you? Not certain ☐; Fairly certain ☐; Very certain ☐

34. Between friends
Cathy: What do you want to do in the future?
Joe: I want to study architecture and build ______ skyscraper. I don’t know where it will be or how tall it will be. I haven’t thought it out.
a ☐; the ☐; -- ☐
35. Between friends
Sally: What do we need to carry for Sunday’s hike?
Kite: First of all, make sure you carry enough water. Then pack some energy food. Perhaps bring ______ hat. I will bring along bandages, some small tools and maps. That should be enough.

How certain are you? Not certain □; Fairly certain □; Very certain □

36. Between friends
Tim: Where do you want to live after you retire?
Rachel: I would like to go to ______ island. I can’t tell you where it is, because I don’t know either at present. There is enough time before retirement for me to figure it out.

How certain are you? Not certain □; Fairly certain □; Very certain □

37. Between two police officers
Clark: I haven’t seen you in a long time. You must be very busy.
Smith: Yes. I have something tough on at the moment. We are trying to find ______ murderer of a famous lawyer.
Clark: Good luck.

How certain are you? Not certain □; Fairly certain □; Very certain □

38. Between friends on the phone
Christina: Hello, you’ve reached Christina Jones’s office.
Rob: Hi, Christina. This is Rob. Do you have time to talk?
Christina: Not right now. I’m sorry, but I’m busy. I am meeting with ______ student.
Rob: Sorry, I will call later.

How certain are you? Not certain □; Fairly certain □; Very certain □

39. Between friends
Chris: Hi, Mike. Where is your classmate Lewis?
Mike: He went to San Francisco for this weekend.
Chris: How can I reach him in San Francisco?
Mike: I don’t know. He is staying with ______ mother of his best friend. I’m afraid I don’t
know who she is, and I don’t have her phone number.
How certain are you? Not certain □; Fairly certain □; Very certain □

40. Between friends
Chris: I need to find your roommate Jonathan right away.
Clara: He is not here. He went to New York.
Chris: Where is he staying?
Clara: I don’t really know. He is staying with ______ friend, but he didn’t tell me who. He
didn’t leave me any phone number or address.
How certain are you? Not certain □; Fairly certain □; Very certain □

41. Between friends
Sue: Congratulations on winning the lottery! What are you going to do with the money?
Sandy: I want to buy ______ house. I don’t know what it will look like or how large it will be. I need to do some research on the housing market.
How certain are you? Not certain □; Fairly certain □; Very certain □

42. Between friends
Mary: What did you do last Sunday?
Paul: I cleaned my apartment in the morning. After lunch I read ______ book. It was so interesting that I kept on reading for the whole afternoon and whole night. I think you will love it. It’s called Wolf Hall. It has won a lot of prizes.
How certain are you? Not certain □; Fairly certain □; Very certain □

43. Between friends
Peter: Did you have a good celebration for your birthday yesterday?
Lucy: Yes! It was great. I got lots of gifts such as books and chocolates. Best of all, I got ______ dog! It is the loveliest animal that I have ever seen! I like it very much and I could tell it likes me too!

a  □;  the □;  -- □

How certain are you?  Not certain □;  Fairly certain □;  Very certain □

44. Between friends
Wendy: My brother is fifty and still a bachelor.
Lily: Why?
Wendy: He wants to marry ______ blonde. She must be tall, beautiful and able to speak four languages. Probably that’s why he has waited for so long.

a  □;  the □;  -- □

How certain are you?  Not certain □;  Fairly certain □;  Very certain □

45. Between colleagues in the office
Kate: You are late today.
Ian: Yes, I overslept. I just brushed my teeth and washed my face. I had no time for breakfast, so I took ______ apple to work. I just managed to catch the right bus.
Kate: Lucky you. The manager hasn’t arrived yet.

an □;  the □;  -- □

How certain are you?  Not certain □;  Fairly certain □;  Very certain □

46. Between students
Kitty: Do you happen to know how to plant tomatoes? My research paper has something to do with that.
Susan: You should ask ______ farmer. Or you can also search online, which is quicker. Nowadays, the internet can answer almost every question.

a  □;  the □;  -- □

How certain are you?  Not certain □;  Fairly certain □;  Very certain □

47. In a school
Student: I am new in this school.
Teacher: Welcome! Are you going to the school party tonight?
Student: Yes. I’d like to get to know my classmates. I am hoping to find ______ good friend
here! I also want to know more about the school and the teachers here. I am looking forward to the party.

48. In a restaurant
Waiter: Are you ready to order, sir?
Client: Can you please come back in about twenty minutes? You see, I am waiting. I am planning to eat with ________ colleague.

Now you have completed all the items in Part 2.
What did you think of this task?

This is the end of the test. Thank you for your participation!
Appendix D English Article Test (Chinese Version)

英语冠词测试

这个测试由两部分组成：Part 1. 语法判断题。Part 2. 冠词选择题。答题过程中允许修改答案，但请不要使用橡皮或其他修正工具，请保留修改痕迹。

Part 1 语法判断题答题方法：

以下每一题由一句或两句句子组成。每题的划线部分名词前可能有a, the, 或者没有冠词。每一题由两个小问题组成，请按顺序回答。

第一问：
阅读句子，判断划线部分的语法是否正确。选项有两项：Correct（正确）和Incorrect（错误），请选择符合你判断的那一项。如果你认为划线部分是错误的，请在下面的横线上改正。

示例：
Jane Austen is a writers.
Correct ☐; Incorrect ☑
If ungrammatical, correct it here: a writer

第二问：
How certain are you?
请判断你对第一问中的语法判断有多确定。选项有三项：Not certain（不确定），Fairly certain（比较确定），和Very certain（十分确定），请选择最符合你情况的一项。

示例：
How certain are you? Not certain ☐; Fairly certain ☐; Very certain ☑
注意：这一问的答案没有对错之分。请根据你的真实感觉做出选择。

让我们来练习两题。

Practice 1
I like coffee.
Correct □; Incorrect □
If ungrammatical, correct it here:______________________
How certain are you? Not certain □; Fairly certain □; Very certain □

Practice 2
I’m sorry. I have made mistake.
Correct □; Incorrect □
If ungrammatical, correct it here:______________________
How certain are you? Not certain □; Fairly certain □; Very certain □

测试开始前
你对答题步骤有什么疑问吗？有问题请现在提出。
这部分测试有52题。如果你做好准备了，请开始答题。

1. If you want to see a panda, the best place to go is China.
Correct □; Incorrect □
If ungrammatical, correct it here:______________________
How certain are you? Not certain □; Fairly certain □; Very certain □

2. A lawyer (律师) was hired (雇用) to help him. Guess who the lawyer is.
Correct □; Incorrect □
If ungrammatical, correct it here:______________________
How certain are you? Not certain □; Fairly certain □; Very certain □
3. Go to ask teacher. Any teacher will be able to answer your question.
Correct □; Incorrect □
If ungrammatical, correct it here: ____________________
How certain are you? Not certain □; Fairly certain □; Very certain □

4. A monkey often represents (代表) cleverness in religion and culture.
Correct □; Incorrect □
If ungrammatical, correct it here: ____________________
How certain are you? Not certain □; Fairly certain □; Very certain □

5. Though she studied medicine, she didn’t become the doctor.
Correct □; Incorrect □
If ungrammatical, correct it here: ____________________
How certain are you? Not certain □; Fairly certain □; Very certain □

6. A hammer (锤子) is very useful in modern life.
Correct □; Incorrect □
If ungrammatical, correct it here: ____________________
How certain are you? Not certain □; Fairly certain □; Very certain □

7. If you want to book a hotel in Hangzhou, I can recommend some good places to stay.
Correct □; Incorrect □
If ungrammatical, correct it here: ____________________
How certain are you? Not certain □; Fairly certain □; Very certain □

8. The senior manager will be sent to our office. We don’t know which one.
Correct □; Incorrect □
If ungrammatical, correct it here: ____________________
How certain are you? Not certain □; Fairly certain □; Very certain □

9. A doctor was called immediately after the accident happened. But I don’t know who it was.

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10. He had been the farmer for three years before he started his own business.
Correct □; Incorrect □
If ungrammatical, correct it here: ______________________
How certain are you? Not certain □; Fairly certain □; Very certain □

11. A restaurant will be booked for Mr. Peterson. But I don’t know which one.
Correct □; Incorrect □
If ungrammatical, correct it here: ______________________
How certain are you? Not certain □; Fairly certain □; Very certain □

Correct □; Incorrect □
If ungrammatical, correct it here: ______________________
How certain are you? Not certain □; Fairly certain □; Very certain □

13. A white rose stands for pure love.
Correct □; Incorrect □
If ungrammatical, correct it here: ______________________
How certain are you? Not certain □; Fairly certain □; Very certain □

14. Peter has read the book. I don’t know which book he has read.
Correct □; Incorrect □
If ungrammatical, correct it here: ______________________
How certain are you? Not certain □; Fairly certain □; Very certain □

15. A scientist made this big discovery (发现). But I don’t know which scientist.
Correct □; Incorrect □
If ungrammatical, correct it here: ______________________
How certain are you? Not certain □; Fairly certain □; Very certain □
16. John loves dogs very much. He is dog lover.
Correct □; Incorrect □
If ungrammatical, correct it here: __________________________
How certain are you?  Not certain □; Fairly certain □; Very certain □

17. A girl will be chosen to perform on stage next month. I don’t know which girl.
Correct □; Incorrect □
If ungrammatical, correct it here: __________________________
How certain are you?  Not certain □; Fairly certain □; Very certain □

18. If you want to book the hotel in Hangzhou, I can recommend some good places to stay.
Correct □; Incorrect □
If ungrammatical, correct it here: __________________________
How certain are you?  Not certain □; Fairly certain □; Very certain □

19. Grey is watching a film. I don’t know which film he is watching.
Correct □; Incorrect □
If ungrammatical, correct it here: __________________________
How certain are you?  Not certain □; Fairly certain □; Very certain □

20. He studied law at school. Then he became a lawyer (律师).
Correct □; Incorrect □
If ungrammatical, correct it here: __________________________
How certain are you?  Not certain □; Fairly certain □; Very certain □

21. The monkey often represents (代表) cleverness in religion and culture.
Correct □; Incorrect □
If ungrammatical, correct it here: __________________________
How certain are you?  Not certain □; Fairly certain □; Very certain □

22. If you want to see panda, the best place to go is China.
Correct □; Incorrect □
If ungrammatical, correct it here: __________________________
How certain are you?  Not certain □;  Fairly certain □;  Very certain □

23. A knife is what I am looking for. Can you give me one?
Correct □;  Incorrect □
If ungrammatical, correct it here: ______________________
How certain are you?  Not certain □;  Fairly certain □;  Very certain □

24. The dancer didn’t arrive in time for the performance. But I don’t know which dancer.
Correct □;  Incorrect □
If ungrammatical, correct it here: ______________________
How certain are you?  Not certain □;  Fairly certain □;  Very certain □

25. Computer can solve many problems for human beings.
Correct □;  Incorrect □
If ungrammatical, correct it here: ______________________
How certain are you?  Not certain □;  Fairly certain □;  Very certain □

26. Go to ask a teacher. Any teacher will be able to answer your question.
Correct □;  Incorrect □
If ungrammatical, correct it here: ______________________
How certain are you?  Not certain □;  Fairly certain □;  Very certain □

27. Roy met the classmate yesterday. I don’t know which classmate he met.
Correct □;  Incorrect □
If ungrammatical, correct it here: ______________________
How certain are you?  Not certain □;  Fairly certain □;  Very certain □

28. A senior manager will be sent to our office. We don’t know which one.
Correct □;  Incorrect □
If ungrammatical, correct it here: ______________________
How certain are you?  Not certain □;  Fairly certain □;  Very certain □

29. Hammer (锤子) is very useful in modern life.
Correct □;  Incorrect □
30. I have never seen a lion. I wish I could see one.

Correct □; Incorrect □

If ungrammatical, correct it here: ________________

How certain are you? Not certain □; Fairly certain □; Very certain □

31. The white rose stands for pure love.

Correct □; Incorrect □

If ungrammatical, correct it here: ________________

How certain are you? Not certain □; Fairly certain □; Very certain □

32. He studied law at school. Then he became lawyer (律师).

Correct □; Incorrect □

If ungrammatical, correct it here: ________________

How certain are you? Not certain □; Fairly certain □; Very certain □

33. A dancer didn’t arrive in time for the performance. But I don’t know which dancer.

Correct □; Incorrect □

If ungrammatical, correct it here: ________________

How certain are you? Not certain □; Fairly certain □; Very certain □

34. The computer can solve many problems for human beings.

Correct □; Incorrect □

If ungrammatical, correct it here: ________________

How certain are you? Not certain □; Fairly certain □; Very certain □

35. Grey is watching film. I don’t know which film he is watching.

Correct □; Incorrect □

If ungrammatical, correct it here: ________________

How certain are you? Not certain □; Fairly certain □; Very certain □

36. John loves dogs very much. He is a dog lover.
37. **Monkey** often represents (代表) cleverness in religion and culture.

Correct ☐; Incorrect ☐

If ungrammatical, correct it here: ______________________

How certain are you? Not certain ☐; Fairly certain ☐; Very certain ☐

38. Peter has read a book. I don’t know which book he has read.

Correct ☐; Incorrect ☐

If ungrammatical, correct it here: ______________________

How certain are you? Not certain ☐; Fairly certain ☐; Very certain ☐

39. **The scientist** made this big discovery (发现). But I don’t know which scientist.

Correct ☐; Incorrect ☐

If ungrammatical, correct it here: ______________________

How certain are you? Not certain ☐; Fairly certain ☐; Very certain ☐

40. Though she studied medicine, she didn’t become a doctor.

Correct ☐; Incorrect ☐

If ungrammatical, correct it here: ______________________

How certain are you? Not certain ☐; Fairly certain ☐; Very certain ☐

41. **Girl** will be chosen to perform on stage next month. I don’t know which girl.

Correct ☐; Incorrect ☐

If ungrammatical, correct it here: ______________________

How certain are you? Not certain ☐; Fairly certain ☐; Very certain ☐

42. I have never seen the** lion. I wish I could see one.**

Correct ☐; Incorrect ☐

If ungrammatical, correct it here: ______________________

How certain are you? Not certain ☐; Fairly certain ☐; Very certain ☐
43. A computer can solve many problems for human beings.
Correct □; Incorrect □
If ungrammatical, correct it here: ______________________
How certain are you? Not certain □; Fairly certain □; Very certain □

44. Lawyer (律师) was hired (雇用) to help him. Guess who the lawyer is.
Correct □; Incorrect □
If ungrammatical, correct it here: ______________________
How certain are you? Not certain □; Fairly certain □; Very certain □

45. Roy met a classmate yesterday. I don’t know which classmate he met.
Correct □; Incorrect □
If ungrammatical, correct it here: ______________________
How certain are you? Not certain □; Fairly certain □; Very certain □

46. The knife is what I am looking for. Can you give me one?
Correct □; Incorrect □
If ungrammatical, correct it here: ______________________
How certain are you? Not certain □; Fairly certain □; Very certain □

47. He had been a farmer for three years before he started his own business.
Correct □; Incorrect □
If ungrammatical, correct it here: ______________________
How certain are you? Not certain □; Fairly certain □; Very certain □

48. White rose stands for pure love.
Correct □; Incorrect □
If ungrammatical, correct it here: ______________________
How certain are you? Not certain □; Fairly certain □; Very certain □

49. John lost his way. He asked a stranger for help.
Correct □; Incorrect □
If ungrammatical, correct it here: ______________________
50. Restaurant will be booked for Mr. Peterson. But I don’t know which one.
Correct ☐; Incorrect ☐
If ungrammatical, correct it here: ____________________
How certain are you?  Not certain ☐; Fairly certain ☐; Very certain ☐

51. The hammer (锤子) is very useful in modern life.
Correct ☐; Incorrect ☐
If ungrammatical, correct it here: ____________________
How certain are you?  Not certain ☐; Fairly certain ☐; Very certain ☐

52. Doctor was called immediately after the accident happened. But I don’t know who it was.
Correct ☐; Incorrect ☐
If ungrammatical, correct it here: ____________________
How certain are you?  Not certain ☐; Fairly certain ☐; Very certain ☐

Part 2冠词选择题答题方法:
在以下每一题中，你将看到两人之间的短对话，每个对话有一个小标题说明对话发生的场景。每个对话中都有一个空格。每一题由两个小问题组成，请按顺序回答。

第一问:
阅读对话，选择最合适的冠词填在划线部分。选项有三项：a/an, the 和 --（‘--’ 表示不填任何冠词），请选择你认为最合适的选项。

示例：
Between friends
Cindy: I am really tired.
Lucy: You should have ______ good night’s sleep.
a ☑; the ☐; -- ☐

第二问：
How certain are you?
请判断你对第一问中选择的冠词有多确定。选项有三项：Not certain（不确定），Fairly certain（比较确定），和 Very certain（十分确定），请选择最符合你情况的一项。

示例：
How certain are you? Not certain ☐; Fairly certain ☐; Very certain ☐

注意：这一问的答案没有对错之分。请根据你的真实感觉做出选择。

让我们来练习一题。

Between friends
Kate: Did you lose anything?
James: Yes. I lost ______ my books!
a ☐; the ☐; -- ☐
How certain are you? Not certain ☐; Fairly certain ☐; Very certain ☐

测试开始前
你对答题步骤有什么疑问吗？有问题请现在提出。
这部分测试有48个对话。如果你做好准备了，请开始答题。

1. In a classroom
Teacher: Tell me something about London.
Student: London is in ________ United Kingdom. It’s a very big city.
   a □; the □; -- □
How certain are you? Not certain □; Fairly certain □; Very certain □

2. Between friends
Gertrude: Guess what? My cousin Claudia is in Washington, D.C. this week.
Richard: What’s she doing there?
Gertrude: She is doing some interviews for her newspaper. She is interviewing ______
politician (政治家); I’m afraid I don’t know who exactly. I’ll find out when I read her article!
   a □; the □; -- □
How certain are you? Not certain □; Fairly certain □; Very certain □

3. Between mother and son
Mother: Have you got everything ready for tomorrow’s test?
Son: Yes. I reviewed all the lessons and exercises. I also bought ______ new pen for
tomorrow. I’ve prepared for everything I can think of. I’m going to sleep early tonight.
Mother: Good.
   a □; the □; -- □
How certain are you? Not certain □; Fairly certain □; Very certain □

4. Between friends
Kathy: My daughter Jeannie loves that new comic strip (漫画) about Super Mouse.
Elise: Well, she is in luck! Tomorrow, I’m having lunch with ______ creator (创作者) of this
comic strip. He is an old friend of mine. So I can get his autograph (签名) for Jeannie!
   a □; the □; -- □
How certain are you? Not certain □; Fairly certain □; Very certain □

5. Between friends
Cindy: Did you have a good weekend?
John: Not bad. I watched _______ movie on Saturday. And I finished my homework on Sunday. How about you?
Cindy: I did a lot of shopping.

6. Between friends
Bill: I’m looking for Erik. Is he home?
Rick: Yes, but he’s on the phone. He is talking to _______ chairman (主席) of his company! I don’t know who that person is, but I know that this conversation is important to Erik.

7. Between friends
Mary: Your friend Anna has published (出版) a new novel. Did you go to her book release event (新书发布活动)?
Rex: I did. She read some passages from her book and answered readers’ questions. At the end of the event she sang _______ song. It was so touching that I was deeply moved. I never knew a writer who could sing so beautifully! It is a pity that you didn’t come.

8. Between friends
Tom: How was your trip to New York?
Susan: Great! I went to many museums and visited many friends. On the last day, I saw _______ play. It was very long, about three hours, but really exciting. The actors were wonderful and the lights on the stage were beautiful.
Tom: I wish I could have seen it.

9. Between friends after seeing a film
Matthew: What do you think of the film?
Ray: The story is good. But I think they should find ______ better actor. The background music is just so so. And the costumes (戏服) could be better.

How certain are you? Not certain □; Fairly certain □; Very certain □

10. Between two reporters
Reporter 1: Do you have time for lunch?
Reporter 2: Sorry. I am busy with a story about local medicine. Today, I’m interviewing ______ famous doctor. I need to run!

How certain are you? Not certain □; Fairly certain □; Very certain □

11. After a women’s running race
Reporter: Excuse me! Can you please let me in?
Guard (保安): What do you need?
Reporter: I am a reporter. I need to talk to ______ winner of this race. I don’t know who she is, so can you please help me?

How certain are you? Not certain □; Fairly certain □; Very certain □

12. Between friends
Debra: What are you planning to do after you graduate from college? Are you going to get a job?
Alex: Not immediately. I am going to travel around ______ world first!

How certain are you? Not certain □; Fairly certain □; Very certain □

13. Between friends
Jane: Do you like cats?
Oscar: So so, but my sister likes cats very much. She wants to buy ______ cat. I don’t know what it will look like. Perhaps she doesn’t know either before she sees it.
14. Between two students
Mike: Are you satisfied with your maths teacher?
Tina: Can’t complain. I just want to have _______ lenient (宽松的) teacher. One that will encourage us more when we make mistakes, rather than criticize (批评) us. More importantly, someone who doesn’t give us so much homework.

15. Friends meeting in a park
Andrew: Hi, Nora. What are you doing here in Chicago? Are you here for work?
Nora: No, for family reasons. I am visiting _______ father of my fiancé (未婚夫). He is really nice, and he is paying for our wedding!

16. Between friends
Laura: I’d like to go for a walk. Is it nice outside?
Jenny: I think so. I can see _______ sun!

17. In a gift shop
Clerk: What can I do for you?
Customer: I am looking for _______ doll (洋娃娃). It can be blue or yellow, the color my daughter likes. Also, it should not be too large for a five-year old girl.

18. At home
Child: Can you please give me a blue pencil?
Mother: Here you go. What are you drawing?
Child: I am drawing _______ sky.
a ☐; the ☐; -- ☐
How certain are you? Not certain ☐; Fairly certain ☐; Very certain ☐

19. Meeting on a street
Roberta: Hi, William! It’s nice to see you again. I didn’t know that you were in Boston.
William: I am here for a week. I am visiting ______ friend.
Roberta: Enjoy your stay. Call me when you have time.
William: Great. I will.
a ☐; the ☐; -- ☐
How certain are you? Not certain ☐; Fairly certain ☐; Very certain ☐

20. Between friends
Vicky: Where were you yesterday? I tried to call you, but you weren’t home.
Rachel: I went to a bookstore and bought a novel and two magazines. Then I went to a café to
read _____ novel. I went home quite late.
a ☐; the ☐; -- ☐
How certain are you? Not certain ☐; Fairly certain ☐; Very certain ☐

21. Between friends
Taylor: My mum is going to throw a party this weekend.
Lisa: Do you need my help?
Taylor: Thanks. We just need _____ tent (帐篷). We are also running out of chairs. Can you
bring some chairs?
Lisa: No problem.
a ☐; the ☐; -- ☐
How certain are you? Not certain ☐; Fairly certain ☐; Very certain ☐

22. At home
Karen: Where’s Beth? Is she coming home for dinner?
Anne: No. She is eating dinner with _____ colleague (同事); she didn’t tell me who it is. She
doesn’t often eat with colleagues. I guess it’s an important dinner.
23. In a university
Paul: Do you have time for lunch?
Sheila: Sorry, I’m very busy. I am meeting with ______ president of our university, Dr. McKinley. He is also a world-class scientist. I need to prepare something before I see him.

24. Between friends
Alice: What did you do last night?
Robin: I went to a video store and got two videos: a German film and a video game. Then, I came home and watched ______ film. How was your day?

25. At a university
Professor Clark: I’m looking for Professor Anne Peterson.
Secretary: I’m afraid she is busy. She is meeting with ______ student, but I’m not sure who. I guess it’s one of her postgraduate students (研究生).

26. At a gallery (美术馆)
Sarah: Do you see that beautiful painting?
Mary: Yes, it’s wonderful.
Sarah: I would like to meet ______ creator (创作者) of that painting; unfortunately, I have no idea who it is since the painting was not signed (签名).

27. Between friends
Tan: You seem a bit stressed recently.
Rose: Yes. I am preparing all sorts of things before I move into the new house. I am looking for ______ cleaner to wash the carpet (地毯) before I move in. I am trying to buy some new furniture. On top of these, packing things is most tiring. I have a lot of stuff (东西)!
Tan: I can help you.

28. Friends travelling on the subway (地铁) in New York
Betty: Do you often take the subway?
Jones: Not often. Why do you ask?
Betty: Subway culture is interesting. I enjoy meeting all sorts of people on the subway. You can see rich and poor people. There are eye-catching (引人注目的) artists. Occasionally, you can also see ______ mayor (市长) of New York City.
Jones: You must be travelling by subway a lot.

29. Between friends
Kitty: Yesterday was Father’s Day. Did you do something special?
Roger: Yes. I bought father ______ gift. Mother prepared his favorite dishes and we finished all the food. We had a lovely time!
Kitty: Cool.

30. At a birthday party
Mother: Happy birthday! What’s your birthday wish?
Boy: I have a lot of wishes. I want ______ pencil box. I want to travel by plane. I wish I could go to Egypt (埃及) and ride camels (骆驼). Not this year, but perhaps in the near future.
Mother: I am sure you will.
31. Between friends
Brian: Guess who I saw on Queen Street last weekend. I saw ______ director of the film Brokeback Mountain. A few people recognized him and asked for a photo. He was really nice.
Jenny: I am a big fan of his.

How certain are you?  Not certain  □;  Fairly certain  □;  Very certain  □

32. Between friends
Leo: I want to learn how to swim. Do you have any suggestions?
Celia: You should first get things ready. Then you should find ______ swimming teacher. You’d better go swimming together with your friends. It is safer.

How certain are you?  Not certain  □;  Fairly certain  □;  Very certain  □

33. Between friends
Peter: What kind of car do you want to buy?
Paul: I want to buy ______ classic car. It must be fast and safe. I know it would probably be expensive, but I am willing to pay for it.

How certain are you?  Not certain  □;  Fairly certain  □;  Very certain  □

34. Between friends
Cathy: What do you want to do in the future?
Joe: I want to study architecture (建筑) and build ______ skyscraper (摩天大楼). I don’t know where it will be or how tall it will be. I haven’t thought it out.

How certain are you?  Not certain  □;  Fairly certain  □;  Very certain  □

35. Between friends
Sally: What do we need to carry for Sunday’s hike (徒步)?
Kite: First of all, make sure you carry enough water. Then pack some energy food. Perhaps bring ____ hat. I will bring along bandages (绷带), some small tools and maps. That should be enough.

How certain are you? Not certain ☐; Fairly certain ☐; Very certain ☐

36. Between friends

Tim: Where do you want to live after you retire (退休)?
Rachel: I would like to go to ______ island. I can’t tell you where it is, because I don’t know either at present. There is enough time before retirement (退休) for me to figure it out.

How certain are you? Not certain ☐; Fairly certain ☐; Very certain ☐

37. Between two police officers

Clark: I haven’t seen you in a long time. You must be very busy.
Smith: Yes. I have something tough (棘手) on at the moment. We are trying to find ______ murderer (谋杀犯) of a famous lawyer (律师).
Clark: Good luck.

How certain are you? Not certain ☐; Fairly certain ☐; Very certain ☐

38. Between friends on the phone

Christina: Hello, you’ve reached Christina Jones’s office.
Rob: Hi, Christina. This is Rob. Do you have time to talk?
Christina: Not right now. I’m sorry, but I’m busy. I am meeting with ______ student.
Rob: Sorry, I will call later.

How certain are you? Not certain ☐; Fairly certain ☐; Very certain ☐

39. Between friends

Chris: Hi, Mike. Where is your classmate Lewis?
Mike: He went to San Francisco for this weekend.
Chris: How can I reach him in San Francisco?
Mike: I don’t know. He is staying with ______ mother of his best friend. I’m afraid I don’t know who she is, and I don’t have her phone number.

How certain are you? Not certain ☐; Fairly certain ☐; Very certain ☐

40. Between friends

Chris: I need to find your roommate Jonathan right away.

Clara: He is not here. He went to New York.

Chris: Where is he staying?

Clara: I don’t really know. He is staying with _______ friend, but he didn’t tell me who. He didn’t leave me any phone number or address.

How certain are you? Not certain ☐; Fairly certain ☐; Very certain ☐

41. Between friends

Sue: Congratulations on winning the lottery! What are you going to do with the money?

Sandy: I want to buy _______ house. I don’t know what it will look like or how large it will be. I need to do some research on the housing market.

How certain are you? Not certain ☐; Fairly certain ☐; Very certain ☐

42. Between friends

Mary: What did you do last Sunday?

Paul: I cleaned my apartment in the morning. After lunch I read _______ book. It was so interesting that I kept on reading for the whole afternoon and whole night. I think you will love it. It’s called *Wolf Hall*. It has won a lot of prizes.

How certain are you? Not certain ☐; Fairly certain ☐; Very certain ☐

43. Between friends

Peter: Did you have a good celebration for your birthday yesterday?
Lucy: Yes! It was great. I got lots of gifts such as books and chocolates. Best of all, I got ______ dog! It is the loveliest animal that I have ever seen! I like it very much and I could tell it likes me too!

How certain are you?  Not certain; Fairly certain; Very certain

44. Between friends
Wendy: My brother is fifty and still a bachelor (单身汉).
Lily: Why?
Wendy: He wants to marry ______ blonde (金发女郎). She must be tall, beautiful and able to speak four languages. Probably that’s why he has waited for so long.

How certain are you?  Not certain; Fairly certain; Very certain

45. Between colleagues (同事) in the office
Kate: You are late today.
Ian: Yes, I overslept (睡过头). I just brushed my teeth and washed my face. I had no time for breakfast, so I took ______ apple to work. I just managed to catch the right bus.

Kate: Lucky you. The manager hasn’t arrived yet.

How certain are you?  Not certain; Fairly certain; Very certain

46. Between students
Kitty: Do you happen to know how to plant tomatoes? My research paper has something to do with that.
Susan: You should ask ______ farmer. Or you can also search online, which is quicker. Nowadays, the internet can answer almost every question.

How certain are you?  Not certain; Fairly certain; Very certain

47. In a school
Student: I am new in this school.
Teacher: Welcome! Are you going to the school party tonight?
Student: Yes. I’d like to get to know my classmates. I am hoping to find ______ good friend here! I also want to know more about the school and the teachers here. I am looking forward to the party.

a  □; the □; -- □
How certain are you? Not certain □; Fairly certain □; Very certain □

48. In a restaurant

Waiter: Are you ready to order, sir?
Client: Can you please come back in about twenty minutes? You see, I am waiting. I am planning to eat with ______ colleague (同事).

Waiter: No problem.

a  □; the □; -- □
How certain are you? Not certain □; Fairly certain □; Very certain □

你已完成 Part 2 所有题目！
你觉得 Part 2 题目难度如何？
很简单 □; 简单 □; 中等 □; 难 □; 很难 □
测试结束！感谢你的参与！
Appendix E Language Background Questionnaire

语言学习背景问卷

本问卷用于搜集与英语学习相关的个人基本信息。研究者在分析你完成的测试时可能会考虑到你填写的这些背景信息。请尽可能回答以下所有问题。

1. 姓名：________________
2. 年龄：________________岁
3. 性别：男 □；女 □
4. 所在的年级：____________
5. 所学专业：____________
6. 请问你的母语是：__________
7. 如果你所在的学校英语课实行分层教学，请问你的英语班是哪个水平？
   低 □；中 □；高 □；
8. 你是否参加过以下英语水平考试？请给出参加过的考试分数。
   大学英语四级：_________；大学英语六级：_________；
   托福：_________；雅思：_________；
   其他英语水平考试（请写出考试名称和分数）：_________________________
9. 你的高中是否是外国语高中？
   是 □；否 □
   如果是，高中主修的外语是____________
10. 你从几岁开始学习英语？
    ______________岁
11. 你学习英语多少年了？
    ______________年
12. 如果你在英语国家生活过，你在那呆了多久？
    ______________年 ______________月 ______________天
13. 请问你每周的英语课有多少时间？
    ______________小时
14. 请问你在课外平均每周花多少时间学习或使用英语？
    ______________小时
15. 你如何评价自己在以下方面的英语能力？（请从“很强”到“很弱”五个等级中做出选择）。
整体英语能力:
很强 □; 强 □; 一般 □; 弱 □; 很弱 □
阅读能力:
很强 □; 强 □; 一般 □; 弱 □; 很弱 □
听力能力:
很强 □; 强 □; 一般 □; 弱 □; 很弱 □
写作能力:
很强 □; 强 □; 一般 □; 弱 □; 很弱 □
口语能力:
很强 □; 强 □; 一般 □; 弱 □; 很弱 □
语法:
很强 □; 强 □; 一般 □; 弱 □; 很弱 □
词汇:
很强 □; 强 □; 一般 □; 弱 □; 很弱 □

谢谢你的回答！

问卷结束，请开始做下面的英语测试。
Appendix F Context Types of GJT (with answers)

(1) [-def, -sp], target $a$, in object position
1. If you want to see a panda, the best place to go is China. correct
2. If you want to see panda, the best place to go is China. incorrect
3. I have never seen a lion. I wish I could see one. correct
4. I have never seen the lion. I wish I could see one. incorrect
5. Go to ask a teacher. Any teacher will be able to answer your question. correct
6. Go to ask teacher. Any teacher will be able to answer your question. incorrect
7. If you want to book a hotel in Hangzhou, I can recommend some good places to stay. correct
8. If you want to book the hotel in Hangzhou, I can recommend some good places to stay. incorrect

(2) [-def, -sp], target $a$, in subject position
9. A girl will be chosen to perform on stage next month. I don’t know which girl. correct
10. Girl will be chosen to perform on stage next month. I don’t know which girl. incorrect
11. A knife is what I am looking for. Can you give me one? correct
12. The knife is what I am looking for. Can you give me one? incorrect
13. A senior manager will be sent to our office. We don’t know which one. correct
14. The senior manager will be sent to our office. We don’t know which one. incorrect
15. A restaurant will be booked for Mr. Peterson. But I don’t know which one. correct
16. Restaurant will be booked for Mr. Peterson. But I don’t know which one. incorrect

(3) [-def, +sp], target $a$, in object position
17. Peter has read a book. I don’t know which book he has read. correct
18. Peter has read the book. I don’t know which book he has read. incorrect
19. Grey is watching a film. I don’t know which film he is watching. correct
20. Grey is watching film. I don’t know which film he is watching. incorrect
21. Roy met a classmate yesterday. I don’t know which classmate he met. correct
22. Roy met the classmate yesterday. I don’t know which classmate he met. incorrect
23. John lost his way. He asked a stranger for help. correct
24. John lost his way. He asked stranger for help. incorrect
(4) [-def, +sp], target a, in subject position
25. A lawyer was hired to help him. Guess who the lawyer is. correct
26. Lawyer was hired to help him. Guess who the lawyer is. incorrect
27. A scientist made this big discovery. But I don’t know which scientist. correct
28. The scientist made this big discovery. But I don’t know which scientist. incorrect
29. A dancer didn’t arrive in time for the performance. But I don’t know which dancer. correct
30. The dancer didn’t arrive in time for the performance. But I don’t know which dancer. incorrect
31. A doctor was called immediately after the accident happened. But I don’t know who it was. correct
32. Doctor was called immediately after the accident happened. But I don’t know who it was. incorrect

(5) [+gen], target a and the, in subject position
33. A hammer is very useful in modern life. correct
34. The hammer is very useful in modern life. correct
35. Hammer is very useful in modern life. incorrect
36. A white rose stands for pure love. correct
37. The white rose stands for pure love. correct
38. White rose stands for pure love. incorrect
39. A monkey often represents cleverness in religion and culture. correct
40. The monkey often represents cleverness in religion and culture. correct
41. Monkey often represents cleverness in religion and culture. incorrect
42. A computer can solve many problems for human beings. correct
43. The computer can solve many problems for human beings. correct
44. Computer can solve many problems for human beings. incorrect

(6) [-def, -sp], target a, in complement position
45. He studied law at school. Then he became a lawyer. correct
46. He studied law at school. Then he became lawyer. incorrect
47. John loves dogs very much. He is a dog lover. correct
48. John loves dogs very much. He is dog lover. incorrect
49. Though she studied medicine, she didn’t become a doctor. correct
50. Though she studied medicine, she didn’t become the doctor. incorrect
51. He had been a farmer for three years before he started his own business. correct
52. He had been the farmer for three years before he started his own business. incorrect
Appendix G Context Types of Article Choice Test

(1) [+sem sp, +prag sp, +ESK], 4 items
1. Between friends
Mary: What did you do last Sunday?
Paul: I cleaned my apartment in the morning. After lunch I read (a, the, -->) book. It was so interesting that I kept on reading for the whole afternoon and whole night. I think you will love it. It’s called Wolf Hall. It has won a lot of prizes.

2. Between friends
Peter: Did you have a good celebration for your birthday yesterday?
Lucy: Yes! It was great. I got lots of gifts—books, chocolates. Best of all, I got (a, the, -->) dog! It is the most lovely animal that I have ever seen! I like it very much and I could tell it likes me too!

3. Between friends
Tom: How was your trip to New York?
Susan: Great! I went to many museums and visited many friends. On the last day, I saw (a, the, -->) play. It was very long, about three hours, but really exciting. The actors were wonderful and the lights on the stage were beautiful.
Tom: I wish I could have seen it.

4. Between friends
Mary: Your friend Anna has published a new novel. Did you go to her book release event?
Rex: I did. She read some passages from her book and answered readers’ questions. At the end of the event she sang (a, the, -->) song. It was so touching that I was deeply moved. I never knew a writer who could sing so beautifully! It is a pity that you hadn’t come.

(2) [+sem sp, +prag sp, - ESK], 4 items
5. At a university
Professor Clark: I’m looking for Professor Anne Peterson.
Secretary: I’m afraid she is busy. She is meeting with (a, the, -->) student, but I don’t know who it is. I guess it’s one of her postgraduate students.
6. At home
Karen: Where’s Beth? Is she coming home for dinner?
Anne: No. She is eating dinner with (a, the, --) colleague; she didn’t tell me who it is. She doesn’t often eat with colleagues. I guess it’s an important dinner.

7. Between friends
Chris: I need to find your roommate Jonathan right away.
Clara: He is not here—he went to New York.
Chris: Where is he staying?
Clara: I don’t really know. He is staying with (a, the, --) friend, but he didn’t tell me who. He didn’t leave me any phone number or address.

8. Between friends
Gertrude: Guess what? My cousin Claudia is in Washington, D.C. this week.
Richard: What’s she doing there?
Gertrude: She is doing some interviews for her newspaper. She is interviewing (a, the, --) politician; I’m afraid I don’t know who, exactly. I’ll find out when I read her article!

(3) [+sem sp, -prag sp, ØESK], 8 items
9. Between friends
Cindy: Did you have a good weekend?
John: Not bad. I watched (a, the, --) movie on Saturday. And I finished my homework on Sunday. How about you?
Cindy: I did a lot of shopping.

10. Between colleagues in the office
Kate: You are late today.
Ian: Yes, I overslept. I just brushed my teeth and washed my face. I had no time for breakfast, so I took (an, the, --) apple to work. I just managed to catch the right bus.
Kate: Lucky you. The manager hasn’t arrived yet.

11. Between mother and son
Mother: Have you got everything ready for tomorrow’s test?
Son: Yes. I reviewed all the lessons and exercises. I also bought (a, the, --) new pen for
tomorrow. I’ve prepared for everything I can think of. I’m going to sleep early tonight.
Mother: Good.

12. Between friends
Kitty: Yesterday was Father’s Day. Did you do something special?
Roger: Yes. I bought father (a, the, −) gift. Mother prepared his favorite dishes and we finished all the food. We had a lovely time!
Kitty: Cool.

13. Between two reporters
Reporter 1: Do you have time for lunch?
Reporter 2: Sorry. I am busy with a story about local medicine. Today, I’m interviewing (a, the, −) famous doctor. I need to run!
Reporter 1: Good luck.

14. Between friends on the phone
Christina: Hello, you’ve reached Christina Jones’s office.
Rob: Hi, Christina. This is Rob. Do you have time to talk?
Christina: Not right now. I’m sorry, but I’m busy. I am meeting with (a, the, −) student.
Rob: Sorry, I will call later.

15. Meeting on a street
Roberta: Hi, William! It’s nice to see you again. I didn’t know that you were in Boston.
William: I am here for a week. I am visiting (a, the, −) friend.
Roberta: Enjoy your stay. Call me when you have time.
William: Great. I will.

16. In a restaurant
Waiter: Are you ready to order, sir?
Client: Can you please come back in about twenty minutes? You see, I am waiting. I am planning to eat with (a, the, −) colleague.
Waiter: No problem.

(4) [-sem sp, +prag sp, +ESK], 4 items
17. Between friends
Peter: What kind of cars do you want to buy?
Paul: I want to buy (a, the, --) classic car. It must be fast and safe. I know it would probably be expensive, but I am willing to pay for it.

18. Between two students
Mike: Are you satisfied with your maths teacher?
Tina: Can’t complain. I just want to have (a, the, --) lenient teacher. He or she should encourage us more when we make mistakes, rather than criticize us. More importantly, he or she shouldn’t give us so much homework.

19. In a gift shop
Clerk: What can I do for you?
Customer: I am looking for (a, the, --) doll. It can be blue or yellow, the color my daughter likes. Also, it should not be too large for a five-year old girl.

20. Between friends
Wendy: My brother is fifty and still a bachelor.
Lily: Why?
Wendy: He wants to marry (a, the, --) blonde. She must be tall, beautiful and able to speak four languages. Probably that’s why he has waited for so long.

21. Between friends
Jane: Do you like cats?
Oscar: So so, but my sister likes cats very much. She wants to buy (a, the, --) cat. I don’t know what it will look like. Perhaps she doesn’t know either before she sees it.

22. Between friends
Cathy: What do you want to do in the future?
Joe: I want to study architecture and build (a, the, --) skyscraper. I don’t know where it will be or how tall it will be. I haven’t thought it out.

23. Between friends
Sue: Congratulations on winning the lottery! What are you going to do with the money?
Sandy: I want to buy (a, the, --) house. I don’t know what it will look like or how large it will be. I need to do some research on the housing market.

24. Between friends
Tim: Where do you want to live after you retire?
Rachel: I would like to go to (an, the, --) island. I can’t tell you where it is, because I don’t know either at present. There is enough time before retirement for me to figure it out.

(6) [-sem sp, - prag sp, ØESK], 8 items
25. At a birthday party
Mother: Happy birthday! What’s your birthday wish?
Boy: I have a lot of wishes. I want to have (a, the, --) pencil box. I want to travel by plane. I wish I could go to Egypt and ride camels. Not this year, but perhaps in the near future.
Mother: I am sure you will.

26. Between friends
Tan: You seem a bit stressed recently.
Rose: Yes. I am preparing all sorts of things before I move into the new house. I am looking for (a, the, --) cleaner to wash the carpet before I move in. I am trying to buy some new furniture. On top of these, packing things is most tiring. I have a lot of stuff!
Tan: I can help you.

27. In a school
Student: I am new in this school.
Teacher: Welcome! Are you going to be at the school party tonight?
Student: Yes. I’d like to get to know my classmates. I am hoping to find (a, the, --) good friend here! I also want to know more about the school and the teachers here. I am looking forward to the party.

28. Between friends
Sally: What do we need to carry for Sunday’s hike?
Kite: First of all, make sure you carry enough water. Then pack some energy food. Perhaps bring (a, the, --) hat. I will bring along bandages, some small tools and maps. That shall be
enough.

29. Between friends
Taylor: My mum is going to throw a party this weekend.
Lisa: Do you need my help?
Taylor: Thanks. **We just need (a, the, --) tent.** We are also running out of chairs. Can you bring some chairs?
Lisa: No problem.

30. Between students
Kitty: Do you happen to know how to plant tomatoes? My research paper has something to do with that.
Susan: **You should ask (a, the, --) farmer.** Or you can also search online, which is quicker. Nowadays, the internet can answer almost every question.

31. Between friends
Leo: I want to learn how to swim. Do you have any suggestions?
Celia: You should first get things ready. **Then you should find (a, the, --) swimming teacher.** You’d better go swimming together with your friends. It is safer.

32. Between friends after seeing a film
Matthew: What do you think of the film?
Ray: The story is good. **But I think they should find (a, the, --) handsome actor.** The background music is just so so. And the costumes could be better.

33. In a university
Paul: Do you have time for lunch?
Sheila: Sorry, I’m very busy. **I am meeting with (a, the, --) president of our university, Dr. McKinley.** He is also a world-class scientist. I need to prepare something before I see him.

34. Meeting in a park
Andrew: Hi, Nora. What are you doing here in Chicago? Are you here for work?
Nora: No, for family reasons. **I am visiting (a, the, --) father of my fiancé—he is really
nice, and he is paying for our wedding!

35. Between friends
Kathy: My daughter Jeannie loves that new comic strip about Super Mouse.
Elise: Well, she is in luck! Tomorrow, I’m having lunch with (a, the, →) creator of this comic strip—he is an old friend of mine. So I can get his autograph for Jeannie!

36. Between friends
Brian: Guess who I saw on Queen Street last weekend. I saw (a, the, →) director of the film Brokeback Mountain. A few people recognized him and asked for a photo. He was really nice.
Jenny: I am a big fan of his.

37. Between friends
Bill: I’m looking for Erik. Is he home?
Rick: Yes, but he’s on the phone. He is talking to (a, the, →) chairman of his company! I don’t know who that person is—but I know that this conversation is important to Erik.

38. Between friends
Chris: Hi, Mike. Where is your classmate Lewis?
Mike: He went to San Francisco for this weekend.
Chris: How can I reach him in San Francisco?
Mike: I don’t know. He is staying with (a, the, →) mother of his best friend—I’m afraid I don’t know who she is, and I don’t have her phone number.

39. After a women’s running race
Reporter: Excuse me! Can you please let me in?
Guard: What do you need?
Reporter: I am a reporter. I need to talk to (a, the, →) winner of this race. I don’t know who she is, so can you please help me?

40. At a gallery
Sarah: Do you see that beautiful painting?
Mary: Yes, it’s wonderful.
Sarah: I would like to meet (a, the, →) creator of that painting; unfortunately, I have no idea who it is, since the painting was not signed.

(9) Distractors. [+def, +sem sp, - prag sp, øESK], 4 items

41. Between two police officers
Clark: I haven’t seen you in a long time. You must be very busy.
Smith: Yes. I have something tough at hand. We are trying to find (a, the, →) murderer of a famous lawyer.
Clark: Good luck.

42. Between friends
Alice: What did you do last night?
Robin: I went to a video store and got two videos—a German film and a video game. Then, I came home and watched (a, the, →) film. How was your day?

43. Between friends
Vicky: Where were you yesterday? I tried to call you, but you weren’t home.
Rachel: I went to a bookstore and bought a novel and two magazines. Then I went to a café to read (a, the, →) novel. I went home quite late.

44. Friends travelling on the subway in New York
Betty: Do you often take the subway?
Jones: Not often. Why do you ask?
Betty: Subway culture is interesting. I enjoy meeting all sorts of people on the subway. You could see the rich and the poor. There are eye-catching artists. Occasionally, you can also see (a, the, →) mayor of New York City.
Jones: You must be travelling by subway a lot.

(10) Universal definites
45. Between friends
Laura: I’d like to go for a walk. Is it nice outside?
Jenny: I think so—I can see (a, the, →) sun!
46. At home
Child: Can you please give me a blue pencil?
Mother: Here you go. What are you drawing?
Child: I am drawing (a, the, --) sky.

47. Between friends
Debra: What are you planning to do after you graduate from college? Are you going to get a job?
Alex: Not yet. I am going to travel around (a, the, --) world first!

48. In a classroom
Teacher: Tell me something about London.
Student: London is in (a, the, --) United Kingdom. It’s a very big city.
## Appendix H Number of Tokens in Each Coding Category

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Appendix I Coded Errors from Learner Compositions

Omission of a (17 errors)

1. After period <ob2,co1,ab2,part,mo3,se2,pr2,def2> [of] practice, some skills can be grasped.

2. In our every day life, for example, if we first use knife <ob2,co1,ab1,objc,mo1,se2,pr1,def2> for the first time, we can’t use it well, if we try to use it for several times.

3. I knew it’s bad habit <ob2,co1,ab2,comp,mo2,se2,pr2,def2> and I’m determined to get out of it.

4. After graduation I want to work at company where there is challenge <ob2,co1,ab2,comp,mo1,se2,pr2,def2>.

5. You must prepare for five minutes’ speech <ob2,co1,ab2,prep,mo2,se2,pr2,def2>.

6. Soon I entirely lay in sea <ob2,co1,ab2,part,mo3,se1,pr2,def2> of the music.

7. You must have much bravery to write diary <ob2,co1,ab1,objc,mo1,se2,pr2,def2>.

8. One person should not complain his being absent of charm because his parents haven’t given him handsome face <ob2,co1,ab1,objc,mo2,se2,pr2,def2> and graceful stature.

9. Finally, I made a great progress in English study and could get high score <ob2,co1,ab2,objc1,mo4,se2,pr2,def2> in English examinations.

10. As an ordinary engineer, he has not much money or high position <ob2,co1,ab2,objc1,mo2,se2,pr2,def2>, but he is a man indeed in my heart.

11. The hardware includes monitor <ob2,co1,ab1,objc1,mo1,se2,pr2,def2>, keyboard, main board with CPU, modem, mouse, hard-disk and its driver, CD-driver, soft-disk driver, RAM, sound box and its driver.

12. When I saw him on the first sight, his big eyes gave me deep and nice impression <ob2,co1,ab2,objc1,mo2,se1,pr2,def2>.
13. In addition, the classroom was full of light atmosphere <ob2,co1,ab2,prep,mo2,se1,pr2,def2>, because of her smiling friendly, our feeling comfortable, without any extra pressure upon us.

14. If you visit my house, you would feel the breath of modern house <ob2,co1,ab1,prep,mo2,se2,pr2,def2>.

15. These movies often attract many people and earn large amount <ob2,co1,ab1,obj1,mo4,se2,pr2,def2> [of] money for their producers.

16. No matter how can you think I consider that all kinds of sports reveal man’s <ob2,co1,ab1,prm,mo1,se2,pr1,def2> strength and braveness that he challenges the nature and himself.

17. The silent answer to such personal insult <ob2,co1,ab2,prep,mo2,se1,pr2,def2> made me wonder what it was that made him such an odd boy.

**Overuse of the for a (10 errors)**

1. Then saving fresh water should be insisted for long-term, for the global shortage of fresh water isn’t the short-term thing <ob3,co1,ab2,comp,mo2,se2,pr2,def2>.

2. The students study very hard, and I also try my best to win the prize <ob3,co1,ab1,obj1,mo1,se2,pr2,def2>.

3. Once the Chinese football team appears in the mach [match] <ob3,co1,ab1,prep,mo1,se2,pr2,def2> and each time they have a shot, I’ll shout, jump and song.

4. In the last three years I won the prize <ob3,co1,ab1,obj1,mo1,se1,pr2,def2> some times.

5. It doesn’t only determined [require] the standard pronunciation <ob3,co1,ab2,obj1,mo2,se2,pr2,def2>, but also need the strong ability of response.

6. It doesn’t only determined [require] the standard pronunciation, but also need the strong ability of response <ob3,co1,ab2,obj1,mo4,se2,pr2,def2>.
7. Last year, the age of her 40’s birthday, She has entered the “211” and has become the important one all the country.

8. I hasn’t the good idea for work now.

9. In my option, e-mail is the trend of the developing of communication way.

10. You may easily connect the computer to the Internet and fetch what you want, send an E-mail to your friend, or invest into the financial fields, for example, stocks, through the financial platform.

**Overuse of a for the zero article (8 errors)**

1. I hope I will find a better work after I graduate.

2. A another reason for my dislike of my dormitory is that there is a leak in the roof, the rain will come in from it.

3. In our country we have today achieved in a high degree the blessings of Democracy, there is freedom; there is law; there is a widening prosperity.

4. Finally, I made great progress in English study and could get high score in English examinations.

5. In the so-called information technology society in the next decades, computer will become a necessary electronic equipment in daily life, just as television and refrigerator.

6. She gave us a strong confidence in learning how to write a beautiful essay.

7. After nearly one-century development, movies have a leap Progress in the every aspect.

8. This is the true meaning of friendship we admired. It cannot be calculated by money. This is a great wealth for people in their life.
### Appendix J Item Facility

#### Table J1 Facility values of items in the GJT

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Table J2 Facility values of items in the article choice test

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## Appendix K Certainty Scores

### Table K1 Certainty score across syntactic and semantic contexts

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